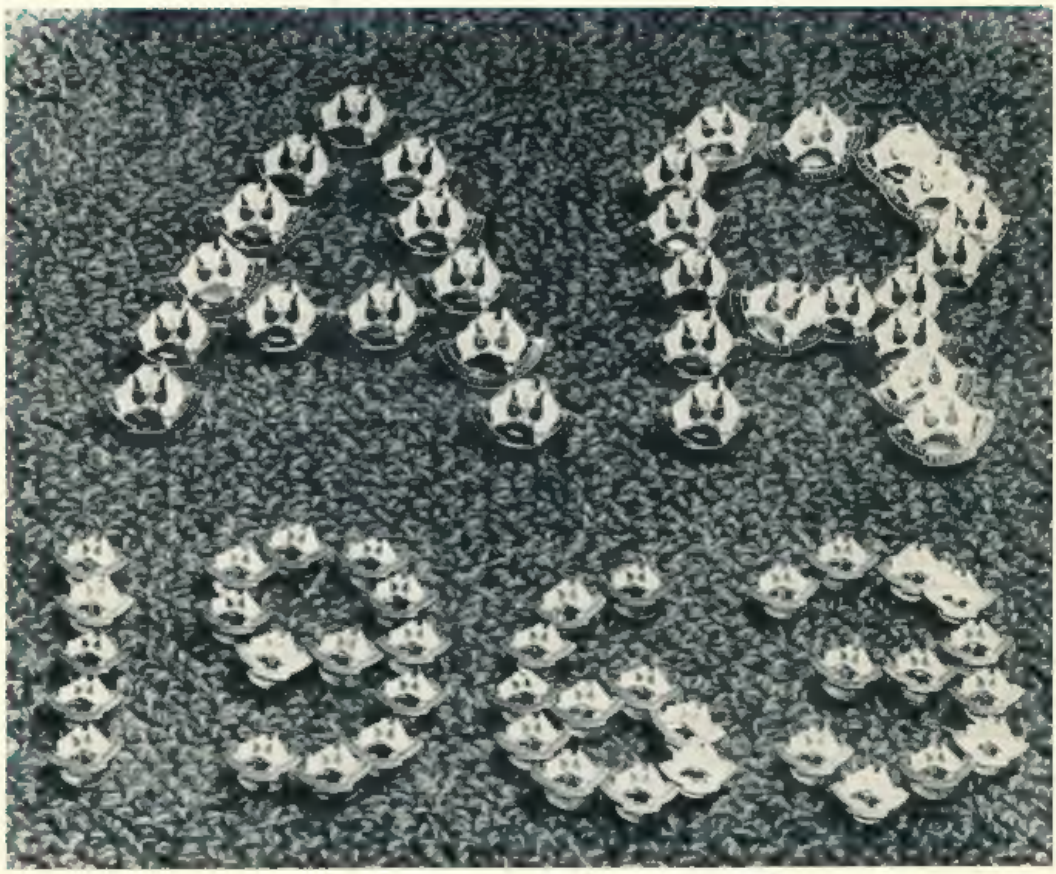
AMATEUR RADIO

JANUARY 1963



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"AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA. FOUNDED 1910.

JANUARY 1963
Vol. 31, No. 1

Publishers:
VICTORIAN DIVISION W.I.A.,
Reg. Office: 62a Franklin St., Melbourne, Vic.

Printers:
"RICHMOND CHRONICLE," Phone 42-2419. Shakespeare Street, Richmond, E.1, Vic.

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All Correspondence should be forwarded to:—

THE EDITOR,
"AMATEUR RADIO,"
P.O. BOX 36,
EAST MELBOURNE, C.2, VIC.

before the 8th of the month preceding publication. Technical articles should preferably be typed, double spaced, on one side of the paper, signed and numbered. All drawings should be large and done in Indian ink.

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Issued monthly on first of month. Subscription rate in Australia and Overseas is 24/- a year, in advance (post paid).

Back copies may be available; enquiries to P.O. Box 36, East Melbourne, C.2, Vic.

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OUR COVER

A group of W.I.A. lapel badges has been used to form our cover motif. Any member of the W.I.A. may wear a lapel badge; it is not necessary that the applicant possesses a transmitting licence.

FEDERAL COMMENT

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CONVENTION ITEMS

By a vote of the Federal Council of the Institute, it has been again agreed to hold a Convention at Easter 1963 in Sydney. It is ten years since the last Convention in this city and a bumper Convention is expected. Every member will be well aware that Conventions cost money and will want to be assured that the expenditure is justified. In addition to the cost, a terrific amount of work must go into the administrative preparations for such a meeting of Council.

Most members would assume that the expenditure of some £400 on a Convention could only be truly justified by the number of items received from Divisions for discussion. This, of course, is largely the case, but perhaps the most important aspect of a Convention is the meeting of the Divisional representatives themselves and their awareness of every other representative's problems which are best given by discussion informally.

Nevertheless, the meat of the Convention are the items submitted by the Divisions and the formation of future policy of the Institute by the delegates. Divisions, and particularly members of the Divisions, must now prepare their briefs for their delegates and forward agenda items to the Executive for action. Not much time remains, so give this matter your urgent attention.

CONTESTS

Since the last war when licences were restored to Amateurs in Australia, the Federal Council has endeavoured to cater for those interested in operation in Contests by organising a number of these events. These have all retained their original popularity, as evidenced by the fact that they still exist and are enthusiastically supported. However, in a number of ways it has been necessary to modernise them from time to time. The Ross Hull, National Field Day, and Remembrance Day events have all been continually under review by the Contest Committee, and more recently, the N.Z.A.R.T. with whom the W.I.A. conduct the VK-ZL Contest on a biannual basis, have seen fit to alter the rules to stimulate continued interest. The advent of a limited licence has to some extent required altered rules to provide for the holder participating in the Contests.

Federal Council have always erred on the side of too few Contests rather than too many, believing this policy to be in the best interests of the Institute. Of recent times, certain representations have been received for an entirely Australian Contest on all-band lines, somewhat similar to the pre-war Fisk Contest, which was most popular in its day. This proposed Contest, if of this type, would be on h.f. bands only and would therefore have to exclude the limited licensees.

The views of members would be welcomed on such a proposal to inaugurate a new Contest of this nature or similar. This could be **your** contribution, through your Division, to providing an interesting item on the agenda for the Convention.

FEDERAL EXECUTIVE, W.I.A.

CONTENTS

CLAMP TUBE MODULATION— AND HOW IT WORKS

C. P. SINGLETON,* VK4UX

MOBILE transmitters always seem to take more power from the battery than desirable, and unless a charger is taken along, the worry of keeping the battery charged can become a problem. In order to conserve battery power, various systems of modulation are tried, and some sort of ratio obtained between power drawn from the battery to supply a modulator and final, and the power developed in the aerial. Some of these ratios can be quite staggering.

TYPES OF MODULATION

For example, consider Heising modulation, an inefficient and out-dated method, which is still used. Assume a power amplifier, having 300 volts on the plate at 50 mA., which represents a power input to the p.a. of 15 watts. To modulate this, we will require 7.5 watts of audio. Using a class A modulator, having an efficiency (we will be generous) of 30%, means that the power input to the modulator will be 100 ÷ 30 × (15 ÷ 2), or 25 watts.

Remember that a valve operating class A has no grid current at any part of its cycle, so the plate current drain will be constant at all times. Only its efficiency will vary. So now (neglecting, for the sake of clarity, the necessary dropping resistor between modulator and p.a., and also to save lots of figures, we will assume the efficiency of the p.a. to be 100%) we will require 25 watts plus 15 watts, a total of 40 watts, from the power supply to deliver a modulated input to the p.a. of 22.5 watts. This will give us an efficiency rating of power used, to power delivered, of 22.5 ÷ 40 × 100%, or 55% for a typical Heising modulation system.

Now consider a class B modulator with the same final. Once more we have 15 watts input to the p.a., and we will require 7.5 watts of audio to modulate it. Now the efficiency of class B is a lot better than Heising, but as we are mainly concerned with power used when the p.a. is 100% modulated, we will consider the modulator drain when it is delivering 7.5 watts. From a typical valve table this is 16 watts. So our figures now are, drain from power supply, 15 plus 16 watts, or 31 watts, for a modulated power input to the p.a. of 15 watts plus 7.5 watts, or 22.5 watts. This gives us an efficiency of 22.5 ÷ 31 × 100, or 72.5%.

Of course, to keep the record straight, the modulation transformer and choke used in above examples, are regarded as having no insertion or other losses.

The next type we will consider is Reference Shift. This is an excellent modulator, but I am afraid that a great number of Amateurs who use it, labour under the false impression that its efficiency is astronomical. In actual fact, there is less than 10% difference, and this occurs when the p.a. is not modulated. In this case Reference Shift is approx. 6% better than class B.

Don't think for one moment that I am decrying Reference Shift, which I have been using since 1952 in various transmitters. If I were building a plate modulated rig and did not have a modulation transformer, I would use Reference Shift. As for Grid, Suppressor, or straight Screen Grid Modulation, none of these would even compare with Single Choke Heising, because we would have to take the plate efficiency of the p.a. into consideration and quite a lot of design care is needed, not to mention adjustment for best results.

CLAMP TUBE MODULATION

Some months back I became the owner of a Type A Mk. III. transmitter, and as there is practically no room to fit a modulation choke, or for that matter, no more than a couple of small valves, I had to think of some system of modulation that did not require much room. As I did not want to exceed the ratings of its power supply, this was quite a problem. So out came my accumulation of years of "A.R's." to see what could be used. Clamp tube modulation seemed to be very popular but not enough information was given as to how it worked.

I like to fully understand anything I am associated with, for example, I have been married for 20 years, and my wife thoroughly understands me, and I am still finding new facets regarding her. Wonderful people, women. But this article is on modulators regretably, so much as I would like to talk about these wonderful creatures, we must push on to more uninteresting things.

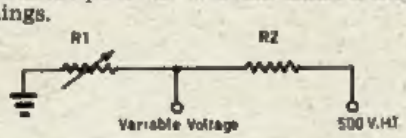

Fig. 1.

Clamp tube modulation at first sight seemed to be comparable with the efficiency of grid modulation, but such is not the case. To digress from modulators for a moment, let us examine the action of a clamp tube. It is generally a triode. Now if sufficient negative bias is applied, the plate current will drop to a very low value, and if the bias were made positive the plate current would rise to a comparatively high value. This variation depends on the type of valve used and what amount of reference bias voltage (if required) is developed across the cathode resistor, if fitted. Now bearing in mind this important fact, it is obvious that the tube can, in effect, be used as a variable resistor to vary the voltage in a resistive network. This is shown in Fig. 1.

Now if this network was altered to a clamp tube set-up, we would replace R1 with a clamp tube as in Fig. 2.

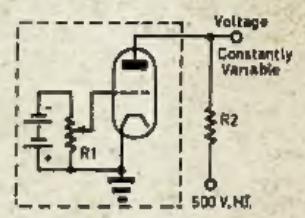

Fig. 2.

By varying the potentiometer across the bias battery, the conductance of the tube can be varied at will and the resultant voltage at the plate of the tube would also vary. Now this is the "intestinal fortitude" of clamp tube modulation. So now we can actually get to designing this modulator, and for the moment, it will take the form as shown in Fig. 3.

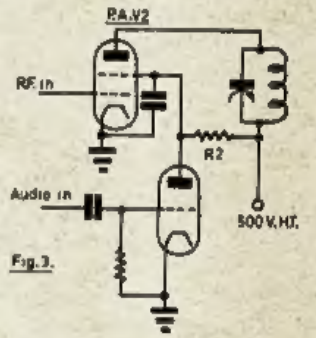

Fig. 3.

Now if audio is fed into the grid of V1, it will be rectified and appear as bias. This bias, when negative, will decrease the conductance of the tube and increase its resistance and, in turn, raise the voltage at the screen of V2. Now if you are doubtful of this occurring, put a diode in series with the grid of V1 and this will prove to you that only a varying **voltage** will appear on the grid. In short, if a syllabic voltage (speech) is applied to the grid of V1, the voltage on the screen of V2 will vary at a syllabic rate. Remember this, as there are a few traps.

Remembering that if sufficient bias is applied to the grid of V1, it will cease to conduct and allow the normal voltage (dropped through R2) to appear at the grid of V2; and if no bias voltage was applied, the tube V1 would conduct and **reduce** the voltage on the screen of V2.

We now have a system whereby we can vary the voltage on the screen of V2 at a syllabic rate. This system can be likened somewhat to single choke Heising, and calls for the screen voltage of V2 to swing between zero and twice its applied voltage.

* 4 Sydney Street, Ayr, North Queensland.

Now in order to obtain the correct set-up, two things have to be considered. Firstly, the applied voltage on the screen of V2, with no modulation (V1 conducting), must be **half** that which would obtain if V1 were not in circuit. This is obtained by applying a reference voltage on the cathode of V1. In my case, it was not necessary. The second thing to consider is that in order to swing the screen voltage between zero and twice its normal applied voltage, we **must** insert a dropping resistor (R3), suitably by-passed for audio, between the screen of V2 and the junction of V1 and R2. This resistor and condenser serves exactly the same purpose as when it is used for single choke Heising modulation. The circuit now becomes as shown in Fig. 4.

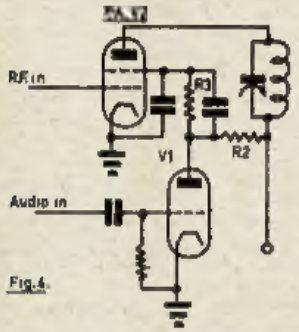

Fig. 4.

Now let us see what happens when we apply sufficient audio to the grid of V1 to obtain 100% modulation. Let us assume that without the clamp tube in circuit, the screen voltage is 300 volts and when it is in circuit, and no audio fed to it, the screen voltage drops to 150 volts. Now when the grid of V1 receives a positive peak voltage it will conduct more and so drop the screen of V2 to zero. Now on the negative peak, V1 is biassed to give a very low value of plate current and we will have 300 volts on the screen of V2. So now we have met the requirements of plate modulation, as applied to a screen grid, which this actually is.

As the screen voltage on V2 varies, so it will affect the plate current of V2 and give us controlled carrier, which is another important factor in economical operating. With the average tube, such as an 807 or 6L6, the plate current will rise from approx. 35 mA. to around 80 mA.

The efficiency of this system, when compared to others already mentioned, is 100%. Sounds incredible, but please read on before you utter that well known Aussie saying, that's related to tennis. The reason is that when it is fully modulated, there is **no power**, or very little, consumed by the modulator tube V1. So that for 15 watts input to the p.a., we draw 15 watts plus modulator drain (practically nil), which gives us 15 watts output. Hard to believe, isn't it? I could not believe it either, but I have verified this fact.

Now you have noticed that I have referred to **syllabic** voltage. In order to obtain this, the time constant of the coupling condenser and grid leak of V1 must be fast. At least 1/100 second. I did have it 1/100 second, but checking it with a v.t.v.m., noticed a slight momentary increase of V2 plate current **after** the modulating tone was removed. Increasing the time constant eliminated this.

One important thing that is more often than not neglected with plate modulation is that of correct time constant of the screen grid by-pass condenser of the p.a. If it is incorrect, that is, too slow, it can give the impression that the matching between modulator and p.a. is incorrect, and if it is a new modulation transformer, one feels inclined to return it to the makers. Dealing with this subject would take another page and as the screen by-pass hasn't got the same job to do, all you have to remember is not to use a too large capacity that will affect the frequency response. So that's less maths. for you when designing clamp tube modulation.

Now for adjusting this system. Unless you are thoroughly familiar with the use of a c.r.o., you will drive yourself up the wall adjusting the modulation percentage. But it is very easy with a v.t.v.m.

ADJUSTMENT

Firstly, adjust the reference bias, if any, of V1 to drop the screen of V2 to half its normal value. Having done that, you then connect the v.t.v.m. to the V2 screen and read the positive voltage. Apply some tone until the screen voltage is 300 volts positive, or twice its unmodulated voltage. Then read the negative peaks, and you should read zero volts, or slightly negative. That's all there is to it.

To sum it all up, this is a most efficient modulator, capable of very good quality and, what is very important, it **cannot** be overmodulated, because it is impossible to swing the voltage of the screen to more than twice its applied voltage because, brother, you can't get **more** than 300 volts!

If you check the pattern of this modulator on a c.r.o., don't expect to get a trap. pattern, because you won't. The voltage on the plate of V2 remains **constant**, but its current varies with variations of screen voltage. In actual practice, the plate current does not quite reach the value obtained with the clamp tube removed, as there will be some current through the clamp tube, even at 100% modulation. But for ease of explanation, I have taken a few liberties, so as to illustrate the operation of this system, without a lot of maths.

One important thing, is that the screen voltage of V2 must be obtained from the same h.t. as that which supplies the plate of V2, because the resistor R2 is, in effect, the load of V1.

Now for the required grid drive to V2. For normal plate modulation, this is generally 2 to 4 times cut off, depending on how much a purist you are. But for c.w. ratings, it can be less. The reason being, say you have 500 volts at 100 mA. input. This is 50 watts for c.w. Now if you modulate this with plate modulation, then the plate voltage of the final will swing between zero and 1,000 volts, and the current will swing between zero and 200 mA. So peak power input to this p.a. at 100% modulation is **200 watts**, or **four** times that of its unmodulated value. So you will require extra drive to look after the extra 150 watts. But with clamp tube operation, we only require the drive requirements that will obtain if the tube were being operated as a **c.w. final.**

I have stated that the efficiency of this system is 100%. But remember, I am comparing it with other systems, taking this system of modulation as 100%. Table 1 gives actual efficiency figures, taking a known value of power to the aerial. Power used being the p.a. power, plus the mod. power. The efficiency of the p.a. as far as r.f. is concerned will be taken as 60% in all cases.

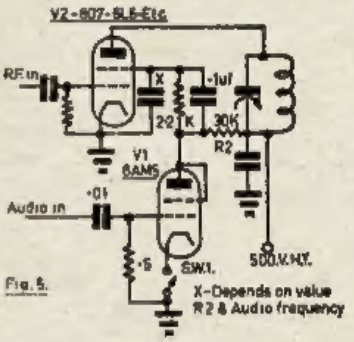

Fig. 5.

So you can see that clamp tube modulation is 21% more efficient than reference shift for the same modulated power to the aerial. This percentage figure is based on the power used, to power out figures of 67% and 51% respectively. Comparing it with Heising modulation on the same basis, the increase in efficiency is 50%.

When tuning up the p.a., the clamp tube is open circuited by means of SW1. The clamp tube, if left in circuit, will mask your p.a. tuning. So switch off the clamp tube, load up the p.a. to aerial as usual, switch on V1, when the plate current of V2 will drop to around half its normal value. Adjust the drive to give around 1.5 mA. grid current of V2, and you are in business.

The finished circuit is as shown in Fig. 5. For the pre-amp. I used a 6U8, but lots of other tubes can be used. ●

Type of Modulation	Pwr. to p.a. and Mod. at 100%	Ditto at Zero Mod. %	Carrier Power at 100%	Ditto at Zero	Mod.	Net Mod.	Average
Heising	66w.	66w.	24w.	16w.	40%	27%	33.5%
Class B	48w.	40w.	24w.	16w.	50%	40%	45%
Reference Shift	48w.	30w.	24w.	16w.	50%	53%	51.5%
Clamp Tube	40w.	16w.	24w.	12w.	60%	75%	67.5%

Table 1.

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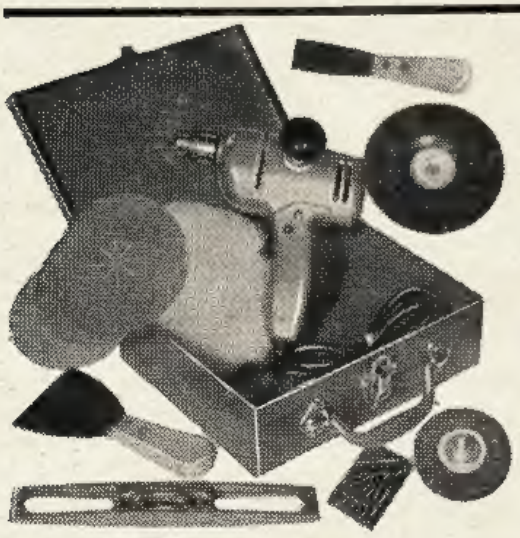
8WR	8"	„ „ „	„ „	„ „ „	7 „	2 „ 12 „	**91/3** „ „ „
12WR	12"	„ „ „	„ „	„ „ „	10 „	4 „ 4 „	**97/9** „ „ „



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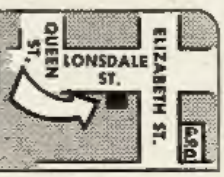

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A CRYSTAL-CONTROLLED 1296 Mc. CONVERTER*

Top U.h.f. Performance with Simple Circuits

H. M. MEYER, JR., W6GGV

• The last few years have seen increasing activity on Amateur frequencies above 1000 Mc. Much of this has come about because of the growing realisation that equipment for u.h.f. work need not necessarily be extremely expensive or difficult to build. Here is an example, a high performance 1296 Mc. Converter that is well within the capabilities of the average experienced builder of Ham gear.

BECAUSE of the growing interest in 1296 Mc., the author wanted to build a converter for this frequency, but it had to be something without a complex string of multipliers and specially-machined cavities, that could be built and put into operation with a minimum of time and trouble. The result, shown in the photographs, is not too much more of a project than a converter for any of the v.h.f. bands, yet its performance on 1296 Mc. is about all that can be achieved without going to parametric amplifiers.

The injection chain has only two 6J6s and a multiplier diode, using a 57.6 Mc. crystal to give injection on 1152 Mc. The output frequency is 144 Mc., chosen to avoid the need for building a low-noise i.f. amplifier stage as part of the converter. Most v.h.f. men already have good converters on 144 Mc., so the needed low-noise amplification at the intermediate frequency is taken care of easily in this way.

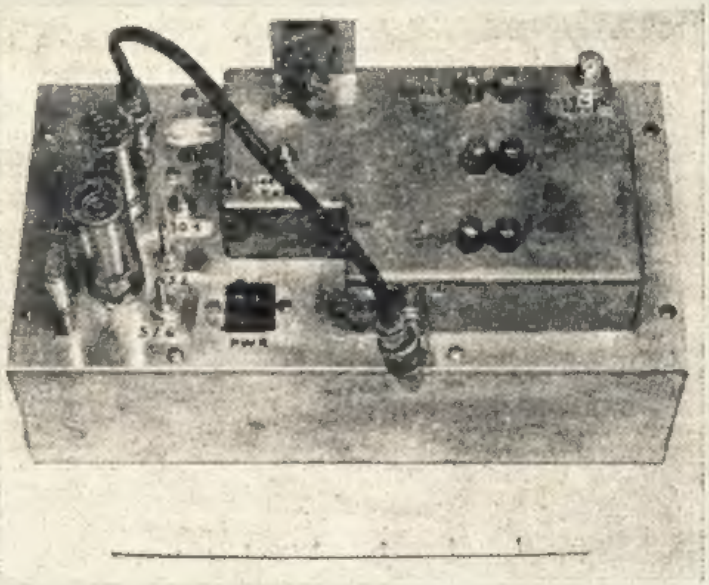
The front end is a simple crystal mixer designed as an integral part of a trough-line assembly. The complete front end is seen from the bottom in the second photograph, with the mixer input line at the top of the picture. The diode multiplier is in the bottom trough. Diode multipliers generate harmonics at all multiples of the driving frequency, so another trough is used to reject frequencies other than the desired 1152 Mc. This middle trough acts like a filter, and as a coupling circuit to the mixer. Aperture coupling is used into this filter, and between it and the mixer.

The mixer crystal is visible in the photograph, centered in the aperture between the mixer and filter troughs. The aperture coupling system does not load the Q of the mixer trough as much as a tapped mixer type, and improved rejection of both unwanted crystal harmonics and out-of-band signals results.

The i.f. tuned circuit, L9 and C7 in Fig. 5, is built into a separate compartment of the mixer assembly, at the right side of the photograph, to provide maximum shielding of the 144 Mc. circuits. Unless good shielding is used at this frequency, a few strong locals on 2 metres can cause a lot of trouble. Details of the mixer assembly metalwork are given in Fig. 1.

OSCILLATOR AND MULTIPLIER CIRCUITS

As may be seen from its circuit diagram, Fig. 2, the vacuum-tube portion of the multiplier chain is very simple. The first stage is an overtone oscillator on 57.6 Mc. The second half of the first 6J6 doubles to 115.2 Mc. This is link-coupled to the grids of a second 6J6, which is a push-push doubler to 230.4 Mc. The 230 Mc. energy is coax-coupled to the multiplier trough, where the diode multiplier output is picked off at the fifth harmonic, 1152 Mc. A fair amount of drive is required to make the diode quintuple effectively, and the 6J6 push-pull doubler provided the most output of any tube tried. Substitutions at this point are not recommended, though almost any dual tube will serve satisfactorily in place of the first 6J6.



The 1296 Mc. crystal controlled converter is built on the cover plate of a chassis. The oscillator and multiplier stages at the left are coax-coupled to the crystal diode multiplier, which is built into the penthouse atop the cover plate. The six screws with nylon nuts are for tuning the three half-wave tank circuits. The i.f. output frequency, 144 Mc., is taken off through a B.N.C. fitting not visible in this picture.

The diode multiplier is the heart of the converter. The secret lies in the impedance-matching LC network, and in the choice of the diode. Credit for the network and aperture mixing techniques, both essential for successful operation of the converter, rightfully belongs to Bill Troetschel, K6UQH, ex-W7LVO. Several diodes, including the 1N72 and 1N82, were tried, the best producing a maximum of 120 microamperes of mixer crystal current. Diodes were then salvaged from plug-in u.h.f. converter strips for the widely used Standard Coil T.V. tuner. Of these, the C.B.S. 1N133 and the Raytheon CK710 worked equally well, yielding 300 to 500 microamp., which is more than enough. This permitted detuning the LC network to decrease the crystal current to the value that gave optimum noise figure for the diode used.

These plug-in converter strips are available for the asking, or at the worst at very low prices, at most t.v. service shops in areas where there is or has been u.h.f. television. Several of the diodes have since been used in other work with good results. The author only wishes that he had stumbled on them sooner; they are well worth the going price. Other diodes are undoubtedly suitable, one widely-used type being the Radio Receptor DR-303, also available at moderate cost.

FRONT-END METAL WORK

The front-end assembly is constructed of sheet brass or copper, 0.025 to 0.050 inch in thickness. Brass was used here as it is easy to work and makes a solid assembly. The photograph shows the original model, which was made with the mixer signal-input cavity slightly shorter than the others. Later work proved this shortening to be unnecessary, so the drawing shows all troughs of equal length.

In making the trough, the sheet metal should be first cut to the dimensions and shape shown in Figs. 1 and 3. Drill all holes and tap where required. Before bending, cut along the line indicated in Fig. 3, then bend as shown. This is easy if you have access to a sheet-metal shop for a nominal fee. In doing the bending yourself, start with the lower lip of the right-hand portion of the assembly first. When the bending

* Reprinted from "QST," September 1962.

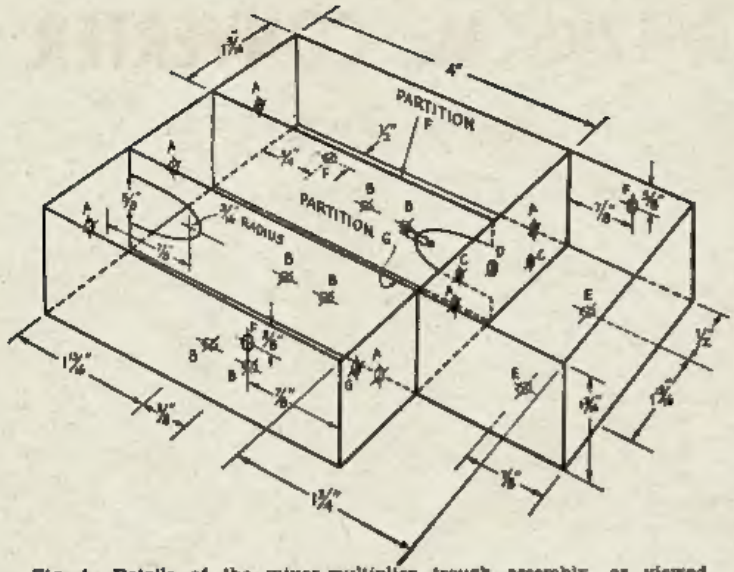
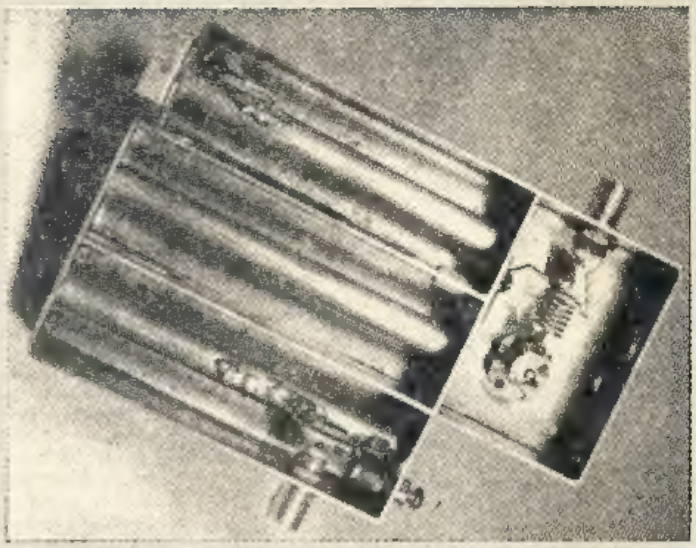


Fig. 1.—Details of the mixer-multiplier trough assembly, as viewed from the bottom. The author recommends 0.025 to 0.050 inch sheet brass, but with minor modifications in design thin materials such as flashing copper could be used. Holes are as follows: A—3/8 inch drill, on centre line of each trough. B—No. 29 drill, tapped for 8-32 screw. C—No. 35 drill, tapped for 6-32 screw; to line up with No. 27 holes in capacitor parts. D—5/16 inch drill, on centre line of partition E of Fig. 3. E—1/4 inch drill. F—3/8 inch drill, B.N.C. fitting clearance. G—Trimmer hole, to suit type of trimmer used; location not critical. The notches at the ends of partitions F and G are coupling apertures.



Bottom view of the r.f. end of the 1296 Mc. converter. The multiplier circuit is the bottom trough. Here a diode delivers 1152 Mc. energy when driven at 230.4 Mc. by the oscillator-multiplier stages. The top trough is the 1296 Mc. mixer. Separating the two is an 1152 Mc. filter and coupling circuit. The mixer crystal may be seen in the aperture between the filter and mixer sections. The small compartment at the right houses the 144 Mc. output circuit.

is completed, soldering of the joints at A, B, C and D (Fig. 3) with intermediate or hard solder is recommended. Anything from 30/70 to Easy-Flo will do. Partition E is then soldered in place with the same type of solder. Partitions F and G may be soldered with 60/40 soft solder. The harder variety may be used for all work, but it is not recommended unless you are patient, and skilled with the torch.

When the partitions have been soldered in place, insert the coarse-tuning screws, after first having run an 8-32 nylon nut up to the head of each screw. Now solder a large 8-32 brass nut to the end of each screw. Do this quickly and with a minimum of heat, and do not disturb the nylon nuts until the screws have cooled completely. Now insert the fine-tuning screws, each with nylon nuts, as before, but do not solder the brass nuts to these screw ends.

Now insert the ¼" hollow brass lines in place (in six holes marked A, Fig. 1) and soft-solder. File the inside surface of the i.f. compartment, partition E, completely smooth, so that no sharp projection will puncture the insulation that is part of the u.h.f. bypass capacitor. Next, a contact pin removed from an octal socket is soldered to partition F, at the deepest point of the aperture, to make contact with the tip of the mixer diode. Solder a 2" length of No. 18 wire to the brass plate (see Fig. 4) for making connection to the i.f. output coil later. The combination crystal-retaining plate and u.h.f. bypass capacitor is shown in Fig. 4. This may be assembled with nylon screws as shown, but if these are not available, insulating shoulder washers and brass screws will do equally well.

Next, referring to Fig. 5, the feed-through capacitor, C6, L bracket and closed-circuit jack for monitoring crystal mixer current are mounted as shown in the top-view photograph. The three B.N.C. connectors are then mounted, along with the 7-turn i.f. coil and tuning capacitor, L9 and C7. The appropriate-sized hole is then carefully drilled in partition E at the end of the multiplier compartment to accommodate the small trimmer capacitor, C4. In the unit pictured, the trimmer capacitor was padded with a small fixed capacitor to bring the tuning range of the trimmer to the proper point. The trimmer pictured is a 0.5-3 pF. unit salvaged from an old t.v. tuner. Use of the next larger size would eliminate need for padding. The small 4-turn coil, L8, is soldered from the B.N.C. connector to the trimmer, and the multiplier diode is soldered to the line approximately 1¼" from the inside wall of partition E. The optimum point will have to be determined later on, but this is a good place to start.

Connect the mixer output to the i.f. coil, using the 2" No. 18 lead previously soldered on the capacitor plate, 1¼ turns from the cold end of the i.f. coil. This connection will be adjusted later for maximum output. The i.f. output coupling loop, L10, is installed with loose coupling to the cold end of the i.f. coil.

The 1296 Mc. antenna coupling loop is made of No. 18 bare wire and soldered to the B.N.C. connector. Then it is run parallel to the ¼" line and grounded to the trough wall. Several methods of input coupling were tried: the loop as described above, a direct tap on the line, and probe coupling. All worked equally well and all are relatively easy to adjust. The probe method is worthy of further mention since, of the three, it appeared to be the least critical to adjust. A 3/16" x 1" piece of brass was soldered edgewise to the centre pin of the B.N.C. connector and adjusted by moving it either closer to or farther from the line.

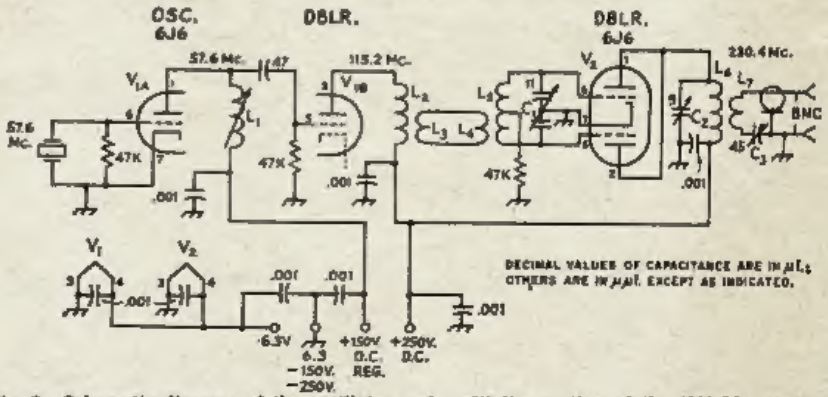


Fig. 2.—Schematic diagram of the oscillator and multiplier section of the 1296 Mc. converter.

C1—11 pF. butterfly variable.
C2—9 pF. miniature variable.
C3—7-45 pF. ceramic trimmer.
L1—10 turns No. 24 enamel on 3/8 inch iron-slug former.
L2—6 turns No. 20 enamel like L1.
L3—2 turns No. 24 enamel around cold end L2.
L4—Like L3, but at centre of L5. L3, L4 and link of one piece of wire.
L5—8 turns No. 18, 3/8 inch diam., 5/8 inch long, c.t.
L6—1 turn No. 18, 3/8 inch diam.
L7—1 turn insulated hook-up wire coupled to L6.

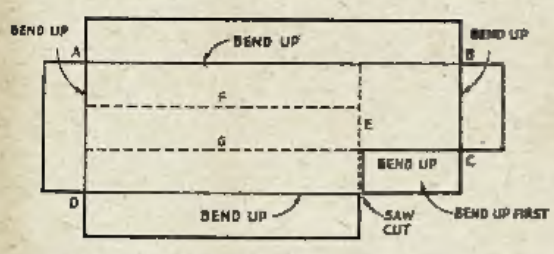


Fig. 3.—Bending instructions for the mixer housing. Dimensions are available from Fig. 1. Partitions E, F and G, indicated by dashed lines, are soldered in place after the bending operation is completed. Note that the lower lip of the i.f. output portion at the right should be bent up first.

MULTIPLIER CHAIN

The converter was constructed on the bottom plate of a 5" x 9½" x 2½" chassis. No special mounting directions are given here since the techniques are quite straightforward. The bottom view photograph shows the principal layout details. Subsequent models were constructed using a larger chassis. The 1296 Mc. trough assembly was mounted underneath the chassis, instead of on top as shown, to provide a little more shielding. In an effort to achieve greater stability, a longer multiplier chain was tried, to eliminate the third-overtone crystal. However, the unit constructed as shown is readily amenable to the application of more sophisticated techniques if they appear desirable later. If no external multiplier chain is contemplated, mounting the crystal underneath the chassis will help to insulate it from external temperature variations.

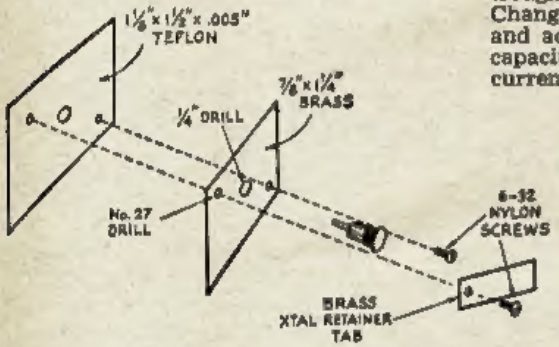


Fig. 4.—Details of the mixer crystal mounting and u.h.f. by-pass capacitor. These mount on the left edge of the i.f. output section, as seen in the bottom view. Locations of the mounting holes are not critical, so long as these and the mating holes in the mixer assembly line up. The centre of hole D should line up with the centre line of partition F.

ADJUSTMENT AND OPERATION

The power supply should deliver 250 volts d.c., 6.3 volts a.c. at 2.5 amp. and 150 volts regulated. An additional power plug may be added to run power to the 144 Mc. converter if desired. Design of the power supply unit is left to the needs of the constructor.

When the trough assembly and multiplier chain have been constructed, apply power to the multiplier and tune up. With the voltage specified, the output at 230.4 Mc. should be capable of lighting a No. 47 pilot lamp to approximately half brilliance. If the output is much less than this, the preceding stages should be checked carefully, and adjusted until the output equals or exceeds the amount required.

The multiplier trough may be preset by turning the coarse-tuning screw until it bottoms on the trough line, then backing off approximately one turn. Set the fine-tuning capacitor to a depth of approximately ¼" in the trough. Set the coarse and fine-tuning adjustments in the filter-mixer trough in the same manner.

The trimmer in the diode multiplier circuit should be set to approximately three-quarter capacity. Insert the mixer crystal (a 1N25 is preferable, but almost any of the 1N21, 1N23 series will do nicely), and plug a 0-100 microammeter into the mixer current jack. Couple the multiplier chain to the crystal multiplier with coax and B.N.C. fittings. With power applied to the multiplier chain, a slight deflection should be noted on the meter. If no deflection is noted, check to make sure that the 1296 Mc. bypass capacitor, C5, is not grounded. Caution: Remove the mixer crystal before measuring with an ohmmeter. If there is still no deflection, use a grid dip oscillator tuned to 23 Mc. and lightly couple into the crystal-multiplier trough. Adjust C2 and C3 for maximum dip. A slight indication should now be seen on the microammeter. Adjust the coarse tuning on both the multiplier and filter troughs for maximum meter indication. Change the meter to a 0-1 mA. type and adjust the fine-tuning and trimmer capacitors for peak crystal-mixer current. Adjust the diode multiplier tap on the trough line for maximum mixer current, being careful not to apply too much heat to the leads of the diode when soldering. A pair of long-nosed pliers will conduct most of the heat away if used to hold the diode pigtail during the soldering operation. When all adjustments have been completed, a reading somewhere between 200 and 500 μA. should be readily attainable, depending on the type of multiplier and mixer crystal used.

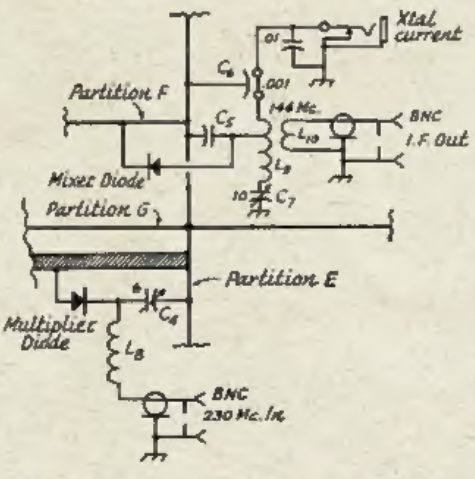


Fig. 5.— Schematic diagram of the diode multiplier and i.f. output circuits of the 1296 Mc. converter. Decimal values of capacitance are in μF., others in pF.

C4—6 pF. plunger-type trimmer.
C5—U.h.f. bypass; see text and Fig. 4.
C6—Feed-through capacitor, 0.0005 μF. or larger.
C7—10 pF. miniature variable.
L8—4 turns No. 26 enamel, closewound, 1/16 inch diameter.
L9—7 turns No. 18, ¼ inch diameter, 7/16 inch long. Tap at 1¼ turns.
L10—2 turns No. 24 insulated hook-up wire inserted between turns of L9. Twist leads to coax fitting.

The injection frequency is 1152 Mc., the fifth harmonic of the multiplier chain. The trough will not tune to the fourth harmonic of the driver, but it will tune to the sixth, 1382.4 Mc. If the maximum amount of mixer current you can obtain is of the order of 60 to 100 μA., you may have tuned the multiplier and filter trough to the sixth harmonic. For this reason it is best to begin tuning adjustments from the maximum-capacity side.

Interior view of the oscillator and multiplier circuits of the converter. The two slug-tuned coils at the lower right are the oscillator and first-doubler plate circuits, L1 and L2. Above is the push-push doubler, with its 115.2 Mc. grid circuitry at the ridge edge and the 230.4 Mc. plate and output-coupling circuits at the left and above the tube socket.

If you have access to a stable 1296 Mc. signal generator, the rest is easy. A local 1296 Mc. Amateur signal will serve nicely, or you may have to build a 1296 Mc. beacon. This is not too difficult. Use a 54 Mc. third-overtone crystal in a transistor oscillator circuit and feed the output to a diode multiplier trough similar to the one described here. The entire unit can be built in a small box about 2" x 3" x 4", including the battery power supply.

Pretune the i.f. coil to 144 Mc. with a grid dip oscillator. Connect the i.f. output to a good 144 Mc. converter and the input signal to the converter. Tune the signal trough and i.f. tuning capacitor for maximum signal. Adjust the tap on the i.f. coil for best match. This point will be ½ to 2 turns from the cold end of the coil, depending on the type of mixer crystal used. Carefully position the output pickup link to the point of maximum signal while retuning the i.f. coil each time an adjustment is made.

Next, adjust the input loop or probe for best noise figure, using whatever diode noise generator you may have.† You will generally find this point lies

(Continued on Page 8)

† Frye, "Adjustment Procedures for V.h.f. Converters," "QST," October 1958.

A HEAVY DUTY PORTABLE/MOBILE POWER SUPPLY

R. HAZLETT, VK4ZRH*

ONE problem with a mobile transmitter in a modern car is how to provide h.t. for prolonged periods without flattening the battery. In addition, to complicate the problem, the power source must be low in cost and dependable in operation.

A possible solution is to utilise disposal motor generators in conjunction with a low powered petrol engine. The latter can be obtained at reasonable cost by adapting the motor from an old lawn mower.

Care should be given to the selection of a suitable motor generator. The main consideration is to choose a unit capable of generating the required voltage at a medium speed of rotation. It is for this reason that a "522" type unit is not recommended because for 300v. out, 6,000 r.p.m. are required. I selected an aircraft type rated at 24/28v. input at 24a. and 1,050v. out at 400 mA. This output being obtained at 3,000 r.p.m.

Having carefully selected your generator, test it on a battery to ensure that all windings are in good condition. In addition, see that the brushes and commutator are clean. The commutator may be cleaned by the application of very fine glass paper, emery paper should not be used.

Carefully dismantle the motor generator and ascertain which end will have to be connected to the petrol motor for correct rotation. Remove the bearings, and fan if necessary, then electric weld (not oxy.) a piece of mild steel to the armature shaft. A length of 1½" should be suitable. Take care to keep sparks and heat away from all windings. This may be done by wrapping the unit in an old bag, and welding only a small tack at a time.

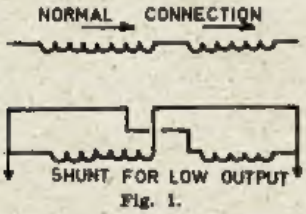


Fig. 1.

The new shaft should then be machined, a job that a local engineering shop would do for a small fee.

The unit should then be re-assembled after the bearings have been re-packed in fresh grease.

If a lower voltage is required the two shunt fields should be connected in parallel, as shown in Fig. 1. Take care not to reverse the polarity! It is essential that the polarity be correct, otherwise the unit may not excite when operated as a generator. By connecting the shunt field across a suitable battery, the direction of rotation can be found. This should be marked on the unit and indicated by an arrow.

* 372 Cavendish Rd., Coorparoo, Qld.

★ The writer provides a possible solution to the problem of providing a heavy duty low cost portable/mobile power supply.

The selection of the petrol motor will depend upon the amount of use required, initial cost and physical size, etc.

Mine is a ½ h.p., four-cycle Briggs & Stratton, as used on a 12v., 300w. lighting plant. A two-stroke unit from an old lawn mower is acceptable, but a four-stroke type is more reliable. A suitable silencer will greatly reduce the noise.

Take precautions against contacting the h.t. output from the generator, or fumes from the engine. Never test in an enclosed space. Carbon monoxide will kill without warning.

The generator is coupled to the petrol engine by means of a 2" piece of rubber hose, **not plastic**. The two ends are clamped by clips, sold by garages as muffler clamps. The generator is connected as shown in Fig. 2. The (carbon pile) regulator will assist to hold the voltage output steady on a wide range of engine speeds. It is virtually noise free and is available from disposal sources.

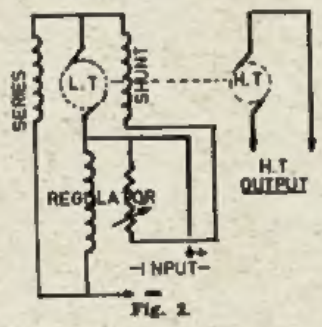


Fig. 2.

Connect the field lead to the armature brush, and the unit is ready for test.

If, on testing, the generator will not excite, connect a 12v. battery across the LV terminals ("input"—Fig. 2). If the motor slows down then the generator is working and charging the battery. Upon disconnecting the battery the generator should continue to be self excited. If this does not happen, then reverse the polarity of the battery and try again. If this also fails, check the brushgear to ensure that it is bedding down correctly upon the commutator. Spare brushes can be obtained from disposal sources or electrical merchants.

By the addition of a solenoid starter, electric fuel pump and/or coil ignition, the unit can be made self starting. This is achieved by connecting a 12v. battery across the LV terminals. Such a means is suitable for petrol units up to 1 h.p. rating. The series winding must be used.

Voltage regulation is assisted by the addition of the carbon pile regulator and, if possible, by the use of a petrol unit equipped with a governor. A VR tube(s) connected across the h.t. output will provide a suitably regulated source for connection to the transmitter v.f.o.

Filtering is required on both the l.t. and h.t. leads. All connections should be short, heavy duty shielded leads. The leads between the brush holders should be kept short.

Using the units specified, the performance is as follows:—

	L.T.	H.T.
1,000 r.p.m.	6v.	250v.
1,500 r.p.m.	12v.	500v.
2,250 r.p.m.	18v.	750v.
3,000 r.p.m.	24v.	1,000v.

If a heavy load is required from the LV output, it should be connected directly across the brush holders. The series field is in reverse polarity for generating, which is only acceptable for small loads.

It will be realised that this unit when built can be used as a battery charger and/or a lighting plant.

My unit will fit comfortably under the bonnet above the steering box in a Holden car. Possibly a similar position could be used in other makes of cars.

This generator has been used with a "522" transmitter for the Scouts' Walkabout through the Lockyer Valley. It has also been pressed into service for hidden transmitter hunts.

Incidentally, by placing a 60 watt, 250v. electric light globe in series with the h.t., 300v. output and illumination is supplied. Be seeing you! ●

☆

A CRYSTAL CONTROLLED 1296 Mc. CONVERTER

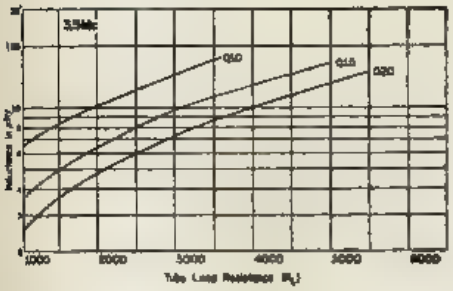
(Continued from Page 7)

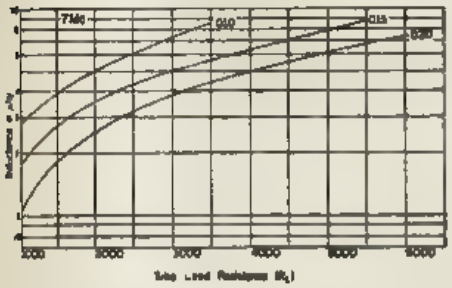
in the direction of greater coupling from the position of maximum signal strength. When the input circuit has been adjusted for optimum noise figure, vary the crystal mixer current from 50 μA. to the maximum available. Make comparative noise-figure measurements for every 20 μA. increase in mixer current. You will probably find the best noise figure occurs between 150-200 μA. with very little change for values between 200 and 500. You are now in business with a 1296 Mc. converter.

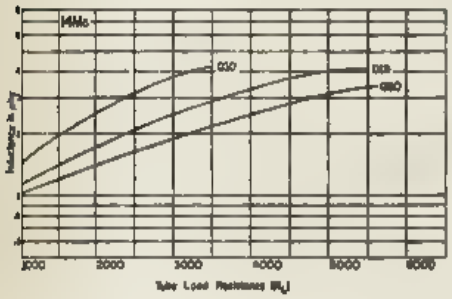
It is appropriate to mention a word of thanks to K6UQH, K6ONM and W6VSV for the help and time they have given in getting this project under way. ●

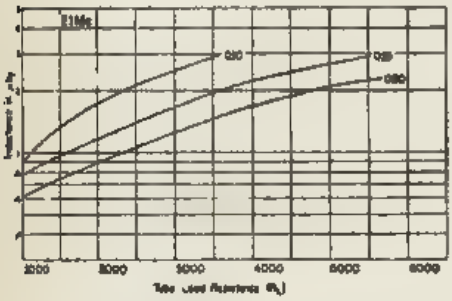
PRACTICAL PI-NETWORK DESIGN DATA*

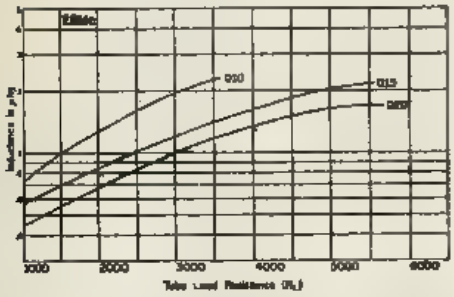
E. H. MARRINER, W6BLZ











The required inductance value for a pi-network on bands 80 through 10 may be determined from this set of curves. The curves are based on an output impedance of 52 ohms. For a 72 ohm load the values may be increased approx. 3%.

● The problem of designing a pi-network output circuit for a transmitter is a thorny one for many Amateurs. The author has removed the need for all but the simplest calculations and has boiled the entire process down to a series of graphs.

MANY modern transmitters use a pi-network tank because it can conveniently match most low impedance lines. Most frequently it feeds a 52 ohm line.

Experimenters, building transmitters using various output tubes, find it difficult to calculate the values of the pi-network components. To make the task simpler, a series of graphs have been constructed so that the components can be determined in inductance and capacitance values directly, rather than reactance values given in most reference texts.

A set of curves is provided for each Amateur band and are calculated for the lowest frequency used in that band. The curves are based on a 52 ohm output which is most commonly used. Two sets of curves are provided for each band, one for the inductance value and one for the capacitance values. The graphs are constructed for three values of Q: 10, 15 and 20.

A high Q tank circuit provides excellent harmonic attenuation but reduced efficiency, while a low Q tank circuit gives little harmonic attenuation but higher efficiency. A value of Q should be chosen that provides a compromise and a suitable value would be 15. This would be best since it would help eliminate harmonics and still provide a reasonable tank efficiency.

HOW TO USE THE GRAPHS

Before using the curves it is necessary to determine the plate load resistance of the output tube feeding the network. If, for example, a 6AG7 is used with 300 volts applied and a plate current of 30 mA. results, the following formula would enable determination of the plate load resistance:—

$$R_l = \frac{E_p}{I_p} \times 500 \text{ or}$$

$$R_l = \frac{300}{30} \times 500 = 5{,}000 \text{ ohms}$$

where:

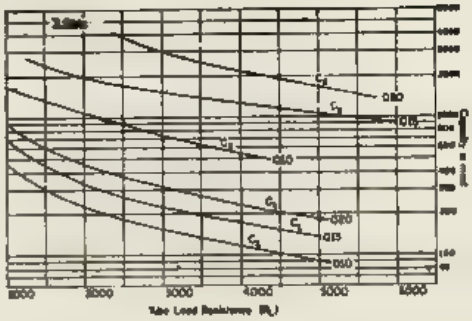
R_l = Plate load resistance.
E_p = Plate voltage under load.
I_p = Plate current under load.

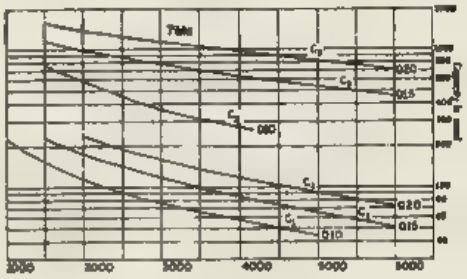
If two tubes are paralleled in the output. the value would be divided by two.

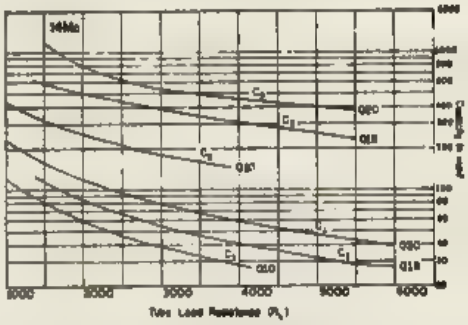
Having decided upon the band, the Q and with the plate load resistance known, we are ready to consult the

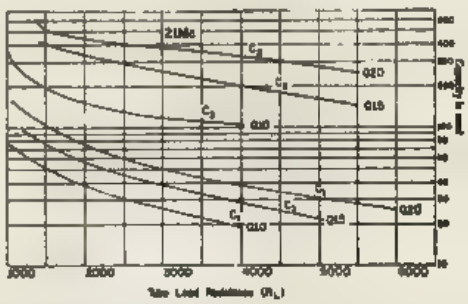
(Continued on Page 11)

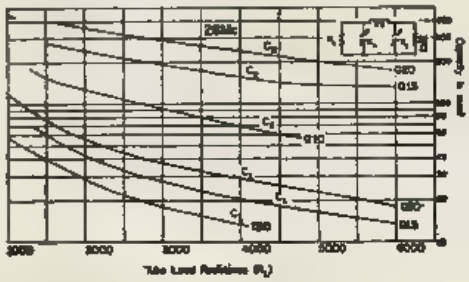
* Reprinted from "CQ," August 1962.











The required capacitance values C1 and C3 for a pi-network may be determined from this set of curves. The curves are based on an output impedance of 52 ohms. For a 72 ohm load, the values may be increased approx. 3%.

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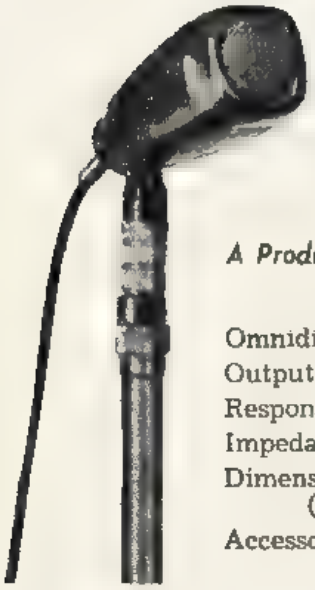

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A STABILISED POWER SUPPLY FOR THE BC221 FREQUENCY METER*

MICHAEL J. HUMPHRIES, G3LRQ

ACCORDING to the official Handbook on the BC221 the power requirements are 6 volts at 850 mA. for the heaters, and 135 volts h.t. at 20 mA. (maximum).

The writer is in possession of a BC221J, and as may be seen from Fig. 1, the cathode of the amplifier valve in this instrument is connected to the "live" side of the heater supply, thus making the use of a.c. for the heaters undesirable.

H.T. SUPPLY

Dealing with the h.t. supply first, it was decided to use a voltage regulator tube of the VR150/30 variety which stabilises at 150 volts for currents up to 30 mA. The circuit of this part of the supply is shown in Fig. 2, and is quite conventional with the possible exception that it employs two 2E1 silicon rectifiers. There are many arguments for and against the use of semi-

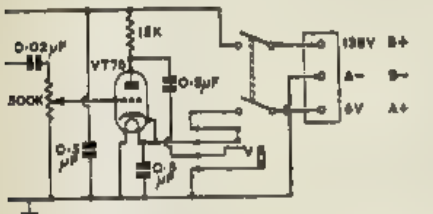


Fig. 1.—Amplifier Stage in the BC221J Frequency Meter.

conductors instead of valves in h.t. rectification circuits, particularly when supplying valves whose heaters take a time to warm up, as the full h.t. voltage is applied almost instantaneously. In this case, however, as may also be seen from Fig. 1, the switching employed by the manufacturers also applies l.t. and h.t. voltages from the batteries at the same instant. Another point to be considered is that the voltage regulator requires 185 volts to strike, and with the transformer used this voltage can be obtained more readily than if the valves in the instrument were already drawing current.

L.T. SUPPLY

In the l.t. supply the series regulator configuration is employed as the load current is fairly high. This is achieved by connecting the collector of a 2N456 transistor to the rectified l.t. voltage (at F2 in Fig. 3), the emitter to the load, and the base to a fixed reference voltage which is equal to the required output voltage plus the base-emitter drop of the series transistor. The inclusion of the OC81 transistor gives a lower output impedance, and divides the base current of the 2N456 by alpha' of the OC81 (where alpha' is the common emitter current gain), hence minimizing the effect of its variations.

At point A the voltage is maintained constant by the Zener diode. In this case an OAZ204 Zener diode was used as this was the only type available when the unit was constructed. The diode stablised at about 6.5 volts (point A) and this necessitated a potential divider network made up of the 2.7K ohms resistor and 250 ohms potentiometer in series, which was used to set the base voltage of the OC81 to give the required 6 volt output. If a Zener diode type OAZ202 was available, this potential network could be dispensed with.

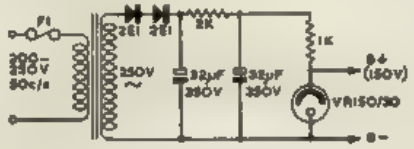


Fig. 2.—Circuit Diagram of the Stabilised H.T. Supply.

There is one main disadvantage with using transistors in this application, and that is that the collector leakage current varies with temperature, so that until the 2N456 reaches its operating temperature the output voltage may vary. In this case it was found to vary from about 5.7 to 6 volts in the first two or three minutes, and then stabilise. The l.t. supply gave no hum to a full load current of 1 amp.

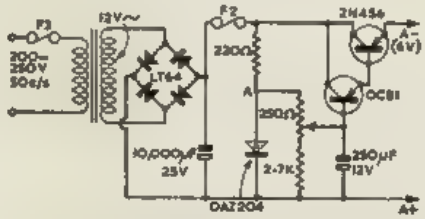


Fig. 3.—Circuit Diagram of the Stabilised L.T. Supply.

The complete supply was mounted in the back of the BC221 case in the space normally occupied by the batteries, the 10,000 μF. can electrolytic capacitor being mounted in the spare parts compartment.

In conclusion, the writer would like to thank Senor J. R. Zaratiegui for his invaluable help in the preparation of this article. ●

* Reprinted from R.S.G.B. "Bulletin," July, '62.

PI-NETWORK DESIGN DATA

(Continued from Page 9)

graphs. For a Q of 15 and a plate load resistance of 5,000 ohms in the 3.5 Mc. band, we consult the appropriate inductance graph.

Scan the bottom of the inductance graph until you locate 5,000 ohms. Now follow the line vertically until it intersects the selected Q value (in this case, 15). The intersect point indicates a required inductance of 16 microhenries. The same procedure is followed to determine the capacitance values.

ACQUIRING THE INDUCTANCE VALUE

Now that a value of 16 microhenries has been determined, how may we convert this into an actual coil? Since most Amateurs do not have an inductance bridge, one of the following methods may be employed.

Set the values of C1 and C2 in the transmitter tank assembly to the values indicated by the curves. Connect a 52 ohm non-inductive resistor across the output. Place the coil stock in the circuit and short out turns until resonance is indicated. If a roller type coil is used, rotate it for a resonance indication.

Pi-networks can also be tuned by reading the r.f. voltage across each capacitor, tuning the coil for maximum.

Another approach is to use Air-Dux bulk coil stock. Illumitronic Engineering Co., Sunnyvale, California, provides an Inductance Calculator (No. 2) that will show the exact number of turns versus inductance for their complete line of bulk coils. ●

— . . . —

YOUTH RADIO CLUBS

Important! Those letters have not begun to flow in, naturally, because this is written before they could flow. But please remember the good reasons, both for the Youth Radio scheme and for Amateur Radio generally, and let me have a summary of your activities to date, and some regular reports.

Salutations this month to the solid effort by Tony Shannon (at the school) and club patron Tom 2OD at St. Leo's College, Wahroonga (Sydney). They have 100 (!) members in the club. Two have recently sat for the A.O.C.P. and a bunch of 11 passed the Elementary Certificate. They have produced a stencilled Radio Handbook of 80 sheets which, as well as basic radio, contains interesting projects such as a computer. Tony is off to England in January, but the club is organised to carry on and expects to put a tx on the air early in the new year. Can any other club match this effort yet?

News flash! Arrangements for the award by the Institution of Radio Engineers of an Efficiency Pennant to the most efficient Youth Radio Club are almost completed and full details should be available soon.

Other pieces of news. We won't mention the Jamboree-on-the-Air because you have heard about it elsewhere. Ibrox Park High, Narrandera High Kingsgrove High, and Canterbury High had successes in Elementary Certificate. De Havilland Aircraft Co. think we are worth supporting—they donated surplus equipment. (How good are you club leaders in the art of scrounging? Let me know your tallest story.) Owing to exams and holidays, most high school clubs are ceasing activities, but let's open with new enthusiasm in February. (How many have an A.O.C.P. candidate in January?) New high school clubs are Farrer Agricultural, Innisfail, Tempe Junior Tech., Granville. New Boy Scout groups are 3rd Gymea, 1st Ettalong, Oakleigh (VK4OS), and Redcliffe Peninsula (Qld.)

Each Division should have all details of the Y.R. scheme but if I can help at all, just ask.

Interesting speculation. What will have happened to the numbers of Amateur Radio licences in 10 years and how will our political strength have changed? 73, Ken VK1KM.

SIDEBAND TOPICS—*BUD POUNSETT,* VK2AQJ*

LESS DISTORTION IN G.G.

Have you seen or heard of "73" magazine, edited by Wayne Green, one-time editor of "CQ"? Here is a very good Amateur magazine filled to the brim with constructional information in all fields of our hobby. There are quite a lot of articles on various aspects of sideband and one of these appeared in the September 1962 issue.

Apparently in commercial applications, the popular, amongst Amateurs, grounded grid amplifier does not have low enough distortion figures to warrant its use. This is of importance when independent sideband transmissions are used. I.s.b. is that form of transmission where both upper and lower sidebands are used simultaneously for two separate purposes. Distortion products from the opposite sideband need to be in excess of 60 db. down to be tolerable.

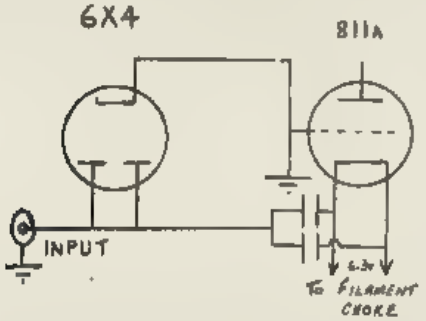


Fig. 1.—Linear Input Loading.

However, a grounded grid linear amplifier presents only a half wave load to the driver, resulting in distortion in this stage which is then amplified by the g.g. stage. Buddy Alvernaz, W6DMN, came up with the answer which is just about as simple as you will ever get. Several types of rectifier tubes can be used to load the driver on the positive half cycle and the 6X4 has the approximate internal resistance to meet the matching requirements. Extra drive is not required. All you need to effect this modification is a 6X4 tube, a 7-pin socket and a few inches of wire. The diagram shows the diode load applied to an 811A grounded grid stage. Already VK3AC and VK2AQJ have installed 6X4 tubes in their finals.

OPERATING PRACTICES

Let us have a look at the current situation on the bands at the moment. Firstly, are we remembering to identify every five minutes? The answer to this one is generally, "Yes". To comply with the regulations, this must be a one hundred per cent "Yes". Even though most of us remember the five minute interval, we very often break the rule on how we identify. Your own call sign is not sufficient, you must also include the other station or stations with whom you are in communication. In between each five minutes, it is not necessary to use call signs when handing over to the next in line unless you wish to do this to avoid confusion. You may then just use his and your own call. Remember when announcing a string of call signs in a net, that you must include the VK prefix for each call sign.

How often do you hear a net in which each station occupies a different frequency? This adds up to a lot of frustration and waste of time in obtaining repeats. It also destroys the excellent facility of vox to make interjections. The simplest and best approach is to nominate one station as frequency control station and keep your v.f.o. aligned to his frequency. Check this alignment at least every five minutes or more frequently if you suspect that your v.f.o. has any tendency to wander.

Do not break into a net as soon as you hear one in progress, wait until the identification time comes around and slip your own call in at an appropriate moment. While you are exchang ing such things as names, locations and signal reports, ask who the frequency control station is. **Do not** break in if a discussion is in progress of which you have no knowledge or interest. Nothing can ruin an interesting net quite so quickly.

If you are talking across town on any of the bands, try reducing the level into the final amplifier, instead of using all that power that is possibly causing interference to someone else quite a long way away. Here is where a single sideband transmitter has an advantage in that the output can be easily controlled. You should vary the gain of an r.f. amplifier to achieve this, not the audio gain control. By turning the audio back you are sacrificing carrier suppression below peak output.

MONITORING S.S.B.

Was that your signal that was spread across about 30 kc. of the band last week-end? By using effective monitoring of the signal this should never happen. The best monitor is an oscilloscope and it does not have to be an elaborate one. However, an r.f. output meter or field strength meter can be used to indicate the correct level. With the meter method, the procedure is to insert carrier until no increase in output occurs with a further increase in carrier level. Note this level on the meter and then with speech input, adjust the level until the speech peaks reach half of that level. This will be the correct adjustment for the average voice.

The only sure way of monitoring s.s.b. is to watch the envelope pattern on an oscilloscope. The procedure to adopt here is to watch the pattern on the screen and increase the level until the peaks are no longer sharp but are flat across the tops. You will soon see what is the correct picture. Once you have made this adjustment, switch on the automatic level control and your worries are over. All sidebanders who have any respect for their fellows and themselves have a.l.c. working for them.

VK2AC MAKES "QST"

I am sure that all Australian Amateurs and in particular, the sideband gang, join me in extending heartiest congratulations to Leo McMahon, VK-2AC, for having his article, "A Phasing/Filter S.s.b. Generator" accepted and published in the October "QST". This is indeed an achievement because I believe the Technical Editor of "QST" is very particular to maintain the high standard of technical articles found in the magazine.

Most of us are familiar with this phasing/filter way of generating a signal, having heard Harry VK2AJZ reaping the benefit of Leo's handiwork. It was Harry's "Sideband Package" transmitter on which Leo operated to produce the prototype of this dual method of sideband generation.

Briefly, the idea is to first produce an s.s.b. signal using the phasing method on about 440 kc. This has several advantages, one in particular being that the r.f. phase-shift network is not at all critical and easily adjusted. This signal is then passed through a single crystal lattice filter where a further improvement in unwanted sideband and carrier suppression takes place. The rest of the exciter follows the general design of the sideband package. A 6BU8 tube has been used as a balanced mixer following the crystal filter.

For those of you who may be interested in further details, your attention is drawn to this excellent article by Leo, "Phasing/Filter S.s.b. Generator," on page 38 of the October 1962 "QST."

The Publications Committee wishes every reader the very best for the coming New Year, and trusts that it will bring to each and all, the things that they would want for themselves.

* 6 Alice Street, Queanbeyan, N.S.W.

AUSTRALIAN DX CENTURY CLUB AWARD

OBJECTS

1.1 This Award was created in order to stimulate interest in working DX in Australia and to give successful applicants some tangible recognition of their achievements.

1.2 This Award, to be known as the "DX Century Club" Award, will be issued to any Australian Amateur who satisfies the following conditions.

1.3 A certificate of the Award will be issued to the applicants who show proof of having contacted one hundred countries, and will be endorsed as necessary, for contacts made using only one type of emission.

REQUIREMENTS

2.1 Verifications are required from one hundred different countries as shown in the Official Countries List.

2.2 The Official Countries List will be published annually in "Amateur Radio" and will be amended from time to time as required. Should a country be deleted from the Countries List at any time, members and intending members will be credited with such country if the date of contact was before such deletion.

2.3 The commencing date for the Award is 1st January 1945. All contacts made on or after this date may be included.

OPERATION

3.1 Contacts must be made in the H.F. Band (Band 7) which extends from 3 to 30 Mc., but such contacts must only be made in the authorised Amateur Bands in Band 7.

3.2 All contacts must be two-way contacts on the same band. Cross band contacts will not be allowed.

3.3 Contacts may be made using any authorised type of emission for the band concerned.

3.4 Credit may only be claimed for contacts with stations using regularly assigned Government call signs for the country concerned.

3.5 Contacts made with ship or aircraft stations will not be allowed, but land-mobile stations may be claimed provided their specific location at the time of contact is clearly shown on the verification.

3.6 All stations must be contacted from the same call area by the applicant, although if the call sign is subsequently changed, contacts will be allowed under the new call sign providing the applicant is still in the same call area.

3.7 All contacts must be made when operating in accordance with the Regulations laid down in the "Handbook for the Guidance of Operators of Amateur Wireless Stations" or its successor.

VERIFICATIONS

4.1 It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that two-way contacts have taken place.

4.2 Each verification submitted must be exactly as received from the station contacted, and altered or forged verifications will be grounds for disqualification of the applicant.

4.3 Each verification submitted must show the date and time of contact, type of emission and frequency band used, the report and the location or address of the station at the time of contact.

4.4 A check list must accompany every application setting out the details for each claimed station in accordance with the details required in Rule 4.3.

APPLICATIONS

5.1 Applications for membership shall be addressed to the Awards Officer, Box 2611W, G.P.O., Melbourne, Vic., accompanied by the verifications and the check list with sufficient postage enclosed for their return to the applicant, registration being included if desired.

5.2 A nominal charge of 2/6, which shall also be forwarded with the application, will be made for the issue of the certificate to successful applicants who are non-members of the Wireless Institute of Australia.

5.3 Successful applicants will be listed periodically in "Amateur Radio". Members of the D.X.C.C. wishing to have their verified country totals, over and above the one hundred necessary for membership, listed will notify these totals to the Awards Officer.

5.4 In all cases of dispute, the decision of the Awards Officer and two members of the Federal Executive of the W.I.A. in the interpretation and application of these Rules shall be final and binding.

5.5 Notwithstanding anything to the contrary in these Rules, the Federal Council of the W.I.A. reserves the right to amend them when necessary.

AUSTRALIAN V.H.F. CENTURY CLUB AWARD

OBJECTS

1.1 This Award has been created in order to stimulate interest in the V.H.F. bands in Australia, and to give successful applicants some tangible recognition of their achievements.

1.2 This Award, to be known as the "V.H.F. Century Club" Award, will be issued to any Australian Amateur who satisfies the following conditions.

1.3 Certificates of the Award will be issued to the applicants who show proof of having made one hundred contacts on the V.H.F. bands, and will be endorsed as necessary, for contacts made using only one type of emission.

REQUIREMENTS

2.1 Contacts must be made in the V.H.F. Band (Band 8) which extends from 30 to 300 Mc., but such contacts must only be made in the authorised Amateur Bands in Band 8.

2.2 In the case of the authorised bands between 30 and 100 Mc., verifications are required from one hundred different stations at least seventy of which must be Australian. The Amateur Bands 50 to 54 Mc. and 58 to 60 Mc. will be counted as one band for the purposes of the Award.

2.3 In the case of the authorised Amateur Band between 100 to 200 Mc. and any authorised band between 200 to 300 Mc., verifications from one hundred different stations for each band is required.

2.4 It is possible under these rules for one applicant to receive three certificates, one for each of the authorised Amateur Bands nominated in Rules 2.2 and 2.3.

2.5 The commencing date for the Award is 1st June, 1948. All contacts made on or after this date may be included.

OPERATION

3.1 All contacts must be two-way contacts on the same band, and cross band contacts will not be allowed.

3.2 Contacts may be made using any authorised type of emission for the band concerned.

3.3 Fixed stations may contact portable/mobile stations and vice versa, but portable/mobile station applicants must make their contacts from within the same call area.

3.4 Applicants, when operating either portable/mobile or fixed, may contact the same station licensee, but may not include both contacts for the same type of endorsement.

3.5 Applicants may only count one contact for a station worked as a limited licensee with a 2 call sign who is subsequently contacted as a full A.O.C.P. holder.

3.6 All stations must be contacted from the same call area by the applicant, although if the applicant's call sign is subsequently changed, contacts will be allowed under the new call sign providing the applicant is still in the same call area.

3.7 All contacts must be made when operating in accordance with the Regulations laid down in the "Handbook for the Guidance of Operators of Amateur Wireless Stations" or its successor.

VERIFICATIONS

4.1 It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that two-way contacts have taken place.

4.2 Each verification submitted must be exactly as received from the station contacted, and altered or forged verifications will be grounds for disqualification of the applicant.

4.3 Each verification submitted must show the date and time of contact, type of emission and frequency band used, the report and the location or address of the station at the time of contact.

4.4 A check list must accompany every application setting out the following details:—

4.4.1 Applicant's name and call sign, and whether a member of the W.I.A. or not.

4.4.2 Band for which application is made, and whether special endorsement is involved.

4.4.3 Where applicable, the date of change of call sign and previous call sign.

4.4.4 Details of each contact as required by Rule 4.3.

4.4.5 The applicant's location at the time of each contact if portable/mobile operation is involved.

4.4.6 Any relevant details of any contact about which some doubt might exist.

APPLICATIONS

5.1 Applications for membership shall be addressed to the Awards Officer, Box 2611W, G.P.O., Melbourne, Vic., accompanied by the verifications and the check list with sufficient postage enclosed for their return to the applicant, registration being included if desired.

5.2 A nominal charge of 2/6, which shall also be forwarded with the application, will be made for the issue of the certificate to successful applicants who are non-members of the Wireless Institute of Australia.

5.3 Successful applicants will be listed periodically in "Amateur Radio". Members of the V.H.F.C.C. wishing to have their verified totals, over and above the one hundred necessary for membership, listed will notify these totals to the Awards Officer.

5.4 In all cases of dispute, the decision of the Awards Officer and two members of the Federal Executive of the W.I.A. in the interpretation and application of these Rules shall be final and binding.

5.5 Notwithstanding anything to the contrary in these Rules, the Federal Council of the W.I.A. reserves the right to amend them when necessary.

AUSTRALIAN D.X.C.C. COUNTRIES LIST

	Phone	C.W.
AC3 Sikkim		
AC4 Tibet		
AC5 Bhutan		
AP West Pakistan		
AP2 Pakistan		
BV (C3) Formosa		
BY (C) China		
C9 Manchuria		
CE Chile		
CE9, KC4, LU-Z, VK0, VP8, ZL5 etc., Antarctica		
CE0A Easter I.		
CE0Z J. Fernandez Arch.		
CM, CO Cuba		
CN2 (prior 1/7/60) Tangier		
CN2, 8, 9 Morocco		
CP Bolivia		
CR4 Cape Verde Is.		
CR5 Portuguese Guinea		
CR5 Principe, Sao Thome		
CR6 Angola		
CR7 Mozambique		
CR8 (prior 1/1/62) Goa		
CR8 Port. Timor		
CR9 Macao		
CT1 Portugal		
CT2 Azores		
CT3 Madeira Is.		
CX Uruguay		
DJ, DL, DM Germany		
DU Philippine Is.		
EA Spain		
EA6 Balearic Is.		
EA8 Canary Is.		
EA9 Ifni		
EA9 Rio de Oro		
EA9 Spanish Morocco		
EA0 Spanish Guinea		
EI Rep. of Ireland		
EL Liberia		
EP, EQ Iran		
ET2 Eritrea		
ET3 Ethiopia		
F France		
FA Algeria		
FB8 A'dam & St. Paul Is.		
FB8 Kerguelen Is.		
FB8 Tromelin I.		
FC Corsica		
*FF8 French West Africa		
TU2 (fr. 7/8/60) Ivory Coast R.		
TY2 (fr. 1/8/60) Dahomey Rep.		
TZ2 (from 20/6/60) Mali Rep.		
XT2 (from 5/8/60) Voltaic Rep.		
5U7 (from 3/8/60) Niger Rep.		
5T5 (from 20/6/60) Mauritania		
6W8 (fr. 20/6/60) Senegal Rep.		

	Phone	C.W.
FG7 Guadeloupe		
FH8 Comoro Is.		
FI8 (prior 20/7/55) Fr. Indo China		
FK8 New Caledonia		
FL8 Fr. Somaliland		
FM7 Martinique		
FN (prior 1/11/54) French India		
FO8 Clipperton I.		
FO8 Fr. Oceania		
FP8 St. Pierre & Miq. Is.		
*FQ8 Fr. Equatorial Africa		
TL8 (fr. 13/8/60) Cen. Afric. R.		
TN8 (from 15/8/60) Congo Rep.		
TR8 (from 17/8/60) Gabon Rep.		
TT8 (from 11/8/60) Chad Rep.		
FR7 Reunion I.		
FS7 Saint Martin		
FU8, YJ1 New Hebrides		
FW8 Wallis & Futuna Is.		
FY7 Fr. Guiana & Inini		
G England		
GC Channel Is.		
GD Isle of Man		
GI Northern Ireland		
GM Scotland		
GW Wales		
HA Hungary		
HB Switzerland		
HC Ecuador		
HC8 Galapagos Is		
HE Liechtenstein		
HH Haiti		
HI Dominican Rep.		
HK Colombia		
HK0 Arch. of San Andres and Providencia		
HK0 Bajo Nuevo		
HK0 Malpelo Is.		
HL Korea		
HP Panama		
HR Honduras		
HS Thailand		
HV Vatican		
HZ Saudi Arabia		
I1, IT1 Italy		
I1 (prior 1/4/57) Trieste		
I5 (prior 1/7/60) It. Somaliland		
IS1 Sardinia		
JA, KA Japan		
JT1 Mongolia		
JY Jordan		
JZ0 West New Guinea		
K, W U.S.A.		

*Fr. West Africa and Fr. Equatorial Africa: Only contacts dated prior to when the particular area obtained separate listing (as shown) will count.

		Phone	C.W.
KA0, KG6I	Bonin & Volcano Is.		
KB6	Baker, Howland and Am Phoenix I. (inc. Canton I.)		
KC4	Navassa I.		
KC6	Eastern Caroline Is.		
KC6	Western Caroline Is.		
KG4	Guantanamo Bay		
KG6	Guam		
KG6	Marcus I.		
KG6	(Rota, Tinian, Saipan, etc.) Mariana Is.		
KH6	Hawaiian Is.		
KH6	Kure I.		
KJ6	Johnston I.		
KL7	Alaska		
KM6	Midway Is.		
KP4	Puerto Rico		
KP6	Palmyra Group, Jarvis I.		
KR6	Ryukyu Is.		
KS4B	Serrana Bank and Roncador Cay		
KS4	Swan Is.		
KS6	American Samoa		
KV4	Virgin Is.		
KW6	Wake I.		
KX6	Marshall Is.		
KZ5	Canal Zone		
LA	Bouvet I.		
LA	Jan Mayen		
LA	Norway		
LA	Svalbard		
LU	Argentina		
LX	Luxembourg		
LZ	Bulgaria		
MP4	Bahrein		
MP4	Qatar		
MP4	Trucial Oman		
OA	Peru		
OD5	Lebanon		
OE	Austria		
OH	Finland		
OH0	Aland Is.		
OK	Czechoslovakia		
ON4	Belgium		
OX, KG1	Greenland		
OY	Faeroes		
OZ	Denmark		
PA0, PI1	Netherlands		
PJ	Neth. West Indies		
PJ2M	Sint Maarten		
PK1, 2, 3	Java		
PK4	Sumatra		
PK5	Borneo		
PK6	Celebes & Molucca Is.		
PX	Andorra		
PY	Brazil		
PY0	Fernando de Noronha		
PY0	Trindade & Martin Vaz Is.		
PZ1	Netherlands Guiana		
SL, SM	Sweden		

		Phone	C.W.
SP	Poland		
ST2	Sudan		
SU	Egypt		
SV	Crete		
SV	Dodecanese		
SV	Greece		
TA	Turkey		
TF	Iceland		
TG	Guatemala		
TI	Costa Rica		
TI9	Cocos I.		
TJ (FE8)	Cameroon Rep.		
TL, TN, TR, TT (see after FQ8)			
TS (3V8)	Tunisia		
TU, TY, TZ (see after FF8)			
UA1-6, UN1	Eur. R.S.F.S.R.		
UA1	Franz Josef Land		
UA2	Kaliningrad Region		
UA9, 0	Asiatic R.S.F.S.R.		
UA0 (prior 1/9/60)	Wrangel I.		
UB5	Ukraine		
UC2	White Russian S.S.R.		
UD6	Azerbaijan		
UF6	Georgia		
UG6	Armenia		
UH8	Turkoman		
UI8	Uzbek		
UJ8	Tadzhik		
UL7	Kazakh		
UM8	Kirghiz		
UN1 (prior 1/7/60)	Kar-Fin.Rep.		
UO5	Moldavia		
UP2	Lithuania		
UQ2	Latvia		
UR2	Estonia		
VE, VO	Canada		
VK	Australia		
VK2	Lord Howe Is.		
VK4	Willis Is.		
VK9	Christmas I.		
VK9	Cocos Is.		
VK9	Nauru I.		
VK9	Norfolk I.		
VK9	Papua Terr.		
VK9	Terr. of New Guinea		
VK0	Heard I.		
VK0	Macquarie I.		
VO (prior 1/4/49)	Newf./Lab.		
VP1	British Honduras		
‡VP2 (prior 1/6/58)	Leeward Is.		
VP2	Anguilla		
VP2	Antigua, Barbuda		
VP2	Br. Virgin Is.		
VP2	Montserrat		
VP2	St. Kitts, Nevis		
‡VP2 (prior 1/6/58)	Windw'd Is.		
VP2	Dominica		
VP2	Grenada & Deps.		
VP2	St. Lucia		

‡ One contact with each group formerly known as "Leeward Is." and "Windward Is." dated prior to 1/6/58 may be credited, in which case no further credit as a separate listing, as from 1/6/58, will be given those particular islands.

	Phone	C.W.
VP2		St. Vincent & Deps.
VP3		British Guiana
VP4		Trinidad & Tobago
VP5		Cayman Is.
VP5		Jamaica
VP5		Turks & Caicos Is.
VP6		Barbados
VP7		Bahama Is.
VP8		Falkland Is.
VP8, LU-Z		South Georgia
VP8, LU-Z		South Orkney Is.
VP8, LU-Z		South Sandwich Is.
VP8, LU-Z, CE9		Sth. Shet. Is.
VP9		Bermuda Is.
VQ1		Zanzibar
VQ2		Northern Rhodesia
VQ4		Kenya
VQ5		Uganda
VQ6	(prior 1/7/60)	Br. Somalil'd
VQ8		Cargados Carajos Shs.
VQ8		Chagos Is.
VQ8		Mauritius
VQ8		Rodriguez I.
VQ9		Aldabra Is.
VQ9		Seychelles
VR1	(includ. Canton Is.)	British Phoenix Is.
VR1		Gilbert & Ellice Is. and Ocean I.
VR2		Fiji Is.
VR3		Fanning & Christmas Is.
VR4		Solomon Is.
VR5		Tonga Is.
VR6		Pitcairn I.
VS1	(from 1/4/46)	Singapore
VS4		Sarawak
VS5		Brunei
VS6		Hong Kong
VS9		Aden & Socotra
VS9		Kamaran Is.
VS9		Maldive Is.
VS9		Sultanate of Oman
VU2		India
VU		Laccadive Is.
VU		Andaman & Nicobar Is.
XE, XF		Mexico
XE4		Revilla Gigedo
XT2	(see after FF8)	
XW8		Laos
XZ2		Burma
YA		Afghanistan
YI		Irak
YK		Syria
YN, YN0		Nicaragua
YO		Roumania
YS		Salvador
YU		Yugoslavia
YV		Venezuela
YV0		Aves I.
ZA		Albania
ZB1		Malta

	Phone	C.W.
ZB2		Gibraltar
ZC5		Br. North Borneo
ZC6		Palestine
ZD1		Sierra Leone
ZD3		Gambia
ZD4	(prior 5/3/57)	Gold Coast, Togoland
ZD6		Nyasaland
ZD7		St. Helena
ZD8		Ascension Is.
ZD9		Tristan da Cunha and Gough I.
ZE		Southern Rhodesia
ZK1		Cook Is.
ZK1		Manihiki Is.
ZK2		Niue
ZL		Chatham Is.
ZL		New Zealand
ZL1		Kermadec Is.
ZL4		Auckland and Campbell Is.
ZM6		Samoa
ZM7		Tokelaus
ZP		Paraguay
ZS1, 2, 4, 5, 6		Rep. of S. Africa
ZS2		Prince Ed. and Marion I.
ZS3		South-West Africa
ZS7		Swaziland
ZS8		Basutoland
ZS9		Bechuanaland
3A		Monaco
3W8, XV5		Vietnam
4S7		Ceylon
4W1		Yemen
4X4	(from 14/5/48)	Israel
5A		Libya
5B4	(BC4)	Cyprus
5H3		Tanganyika
5N2		Nigeria
5R8	(Madagascar)	Malagasy
5T5	(see after FF8)	
5U7	(see after FF8)	
5V	(FD)	Togo Rep.
6O1, 6O2	(from 1/7/60)	Somalia Rep.
6W8	(see after FF8)	
7G1	(from 1/10/58)	Rp. of Guinea
9A	(MI)	San Alarino
9G1	(from 5/3/57)	Ghana
9K2		Kuwait
9K3		Kuwait-Saudi Arabia Neutral Zone
9M2		Malaya
9N1		Nepal
9Q5	(previously OQ5-0)	Rep. of The Congo
9S4	(prior 1/4/57)	Saar
9U5	(from 1/7/60 to 30/6/62)	Ruanda-Urundi
—		Cambodia
9U5	(from 1/7/62)	Rwanda Rep.
9U5	(from 1/7/62	Burundi

NATIONAL FIELD DAY CONTEST, 1963

Saturday, 9th February, and Sunday, 10th February

Dates. **Saturday, 9th, and Sunday, 10th February, 1963.**

Duration: **Saturday, 1800 to 2300 hrs., Sunday, 1000 to 1600 hrs.**

Objects: The operators of Portable and Mobile Stations within all VK Call Areas will endeavour to contact other Portable/Mobile and Fixed Stations in Australian and Oversea Call Areas.

RULES

1. There shall be five sections in the Contest:—
   (a) Portable/Mobile Transmitting, Phone.
   (b) Portable/Mobile Transmitting, C.w.
   (c) Portable/Mobile Transmitting, Multiple Operators, Open only
   (d) Fixed Transmitting Stations working Portable/Mobile Stations, Open only.
   (e) Reception of Portable/Mobile Stations.

2. All Australian Amateurs may take part. Mobile or Portable Stations shall be limited to an input of 25 watts to the final stage. This power shall be derived from a self-contained and fully portable source. A Portable/Mobile Station shall not be located within one mile radius from the home(s) of the operator(s), nor be situated in any occupied dwelling or building.

Portable/Mobile Stations may be moved from place to place during the Contest

No apparatus shall be set up on the site earlier than 24 hours prior to the Contest.

All Amateur bands may be used, but no cross-band operating is permitted.

3. Amateurs may enter for either (a) or (b), or both, in the Portable/Mobile sections.

4. One contact per station for phone and one for c.w. per band is permitted.

5. Entrants must operate within the terms of their licences and in particular observe the regulations with regard to portable operation.

6. Serial numbers consisting of RS or RST report plus three figures commencing with 001 and increasing by one for each successive contact shall be exchanged

7. **Scoring**:—

(a) **Portable/Mobile Stations:**
For contacts with Portable/Mobile Stations outside entrant's Call Area . . . . . **15 points**
For contacts with Portable/Mobile Stations within entrant's Call Area . . . . . **10 points**
For contacts with Fixed Stations outside the entrant's Call Area **5 points**
For contacts with Fixed Stations within the entrant's Call Area **2 points**

(b) **Fixed Stations:**
For contacts with Portable/Mobile Stations outside entrant's Call Area . . . . . **15 points**
For contacts with Portable/Mobile Stations within entrant's Call Area . . . . . **10 points**

8. The following shall constitute Call Areas: VK1 and VK2 combined, VK3, VK4, VK5 and VK8 combined, VK6, VK7, VK9 and VK0.

9. All logs shall be set out under the following headings: Date/Time (E.A.S.T.), Band, Emission, Call Sign, RST/No. Sent, RST/No. Received, Points Claimed. Contacts must be listed in numerical order.

In addition, there shall be a front sheet showing the following information:—

Name . . . . . Address . . .
Call Sign . . . . . Section . . . . . .
Call Sign of other operator(s) (if any) . .
Location of Portable/Mobile Station . .
From . . . . . hours to . . . . . hours
From . . . . . hours to . . . . . hours

A brief description of equipment used, bands used and points claimed, followed by the declaration.

"I hereby certify that I have operated in accordance with the rules and spirit of the Contest."
Signed . . . . . Date . . .

10. The right is reserved to disqualify any entrant who, during the Contest, has not observed the Regulations and the Rules of this Contest or who has consistently departed from the accepted code of operating ethics.

11. The decision of the Federal Contest Committee of the Wireless Institute of Australia is final and no disputes will be entered into.

12. Certificates will be awarded to the highest scorer in each Call Area. Additional Certificates may be issued at the discretion of the F.C.C.

13. **Return of Logs**:—

All entries must be postmarked not later than the 9th March, 1963, and addressed to the—

Federal Contest Committee, W.I.A., Box 638J, G.P.O., Brisbane, Queensland.

RECEIVING SECTION

14. This section is open to all Short Wave Listeners in VK Call Areas. The Rules shall be the same as for the Transmitting Stations. Logs shall take the same form as for Transmitting Stations, but will omit the serial number received.

Logs must show the Call Sign of the Station heard, the serial number sent by it, and the Call Sign of the Station being worked.

Only one lot of points can be claimed for any one contact between two stations, for example: VK2AA/P calling VK3XX/P and exchanging numbers. Points can be claimed only for VK2AA/P working VK3XX/P.2 **No** points can be claimed for VK3XX/P working VK2AA/P during this particular contact.

Scoring will be on the same basis as for Transmitting Stations. It will not be sufficient to log a station calling CQ. A station may be logged once only for phone and once for c.w. in each band

Awards.—Certificates will be awarded for the highest scorer in each Call Area.

Trade Review

"TELECOMPONENTS" VIBRATOR MODULE TYPE 7007

This is a reliable solid state switching unit, being a direct plug-in replacement for a conventional non-synchronous reed type vibrator in mobile communications equipment.

This model was developed primarily for use in A.W.A. Mobile Power Supplies types H59652 and 2H30322. Telecomponents advise that units suitable for other makes of equipment are under development. The receiver vibrator in the A.W.A. unit operates continuously on both transmit and receive positions and thus the failure rate is high. The 7007 replaces this vibrator.

Operation is by two OC35 switching transistors mounted on aluminium heat sinks which form the side plates of the unit. A feed-back transformer is mounted between the plates. Overall dimensions including plug pins are approximately those of the original vibrator.

Typical collector current peaks under supply voltage conditions of 10 to 15 volts are approx. 5 amps. for switch-on conditions and approx. 4 amps. for normal running. Under the worst conditions of transient switching and at maximum applied voltage, the peak collector current does not exceed the rating of the OC35s. Both collector current and frequency remain stable over a wide variation of ambient temperature. Frequency falls within the range 95–120 c.p.s.

Dimensions: overall height 4-9/16", base (not symmetrical) 1-7/16 x 1-11/16" x 1".

Price, all States: £5/8/0 plus 12½% sales tax, if conditionally exempt, from Telecomponents Pty. Ltd., 752 Pittwater Road, Brookvale, N.S.W.

£5/5/- PRIZE FOR SELECTED PHOTOGRAPH

Come on shutterbugs! Here's a chance to win five guineas.

The Federal Executive of the W.I.A requires a topical picture to form the background for the production of the **John Moyle Memorial National Field Day Contest Certificate.**

The selected picture is to be typical of field day operating in the wide open spaces depicting distance and height.

The picture can include equipment and antennae, but not close-ups showing trade names and personalities.

Entries can be any reasonable size on glossy paper **Do not send negatives but keep the negative in good condition for forwarding if your picture is selected.**

The negative of the winning selection must be available immediately upon request and must be suitable for enlargement up to full plate. Several negatives may be called for before final selection. **Closing date: 1st April, 1963.**

The W.I.A. reserves the right of retaining all pictures forwarded and the final selection of negatives.

To enter, post only a picture, enclosing your name and address to:—

Federal Secretary,
W.I.A. Federal Executive,
Box 2611W, G.P.O.,
Melbourne, C.1, Vic.

☆

MULLARD STEREO "TEN-TEN"

This 10 watt per channel stereophonic amplifier is a successor to Mullard's popular "Five-Ten" monaural amplifier and, as the demand for circuitry and constructional details has been so great since its publication in "Outlook," Mullard decided to reprint in leaflet form. This leaflet is available free from Mullard-Australia Pty. Ltd., Box 2118, G.P.O., Sydney, or their Interstate branches, upon receipt of a stamped, addressed, foolscap envelope.

Meet the Other Amateur and His Station

HAROLD L. HOBLER,* VK4DO

THERE are few Amateurs in this country who have not worked or heard VK4DO, the Rockhampton (Qld.) station of Harold L. Hobler, for during an active Amateur career of forty years, over 21,000 QSOs with 245 countries have been entered in his logs.

Harold first built crystal and valve receivers in 1921 and early in 1923 transmitted 240 metre telephony, the band licensed in those days. Electrolytic rectifiers (aluminium and lead in a borax solution) were the vogue in those days, with a self excited coupled Hartley oscillator of one tube in the transmitter, and absorption loop modulation.

From electrolytic rectifiers, progress was made in securing a better d.c. note by the use of Amrad "S" tubes imported from America, and the use of a 500 volt d.c. generator.

In those days everything bar the valves were home made; variable condensers, fixed condensers, coils, rheostats, knobs and dials. Even blocking condensers that withstood 550 volts a.c. came to light from tin foil and paper, rolled up and pressed between cardboard.

Many receivers were made up, including a one-tube regenerative that repeatedly received broadcasting from America on 317 metres in daylight, a three-tube and five-tube all wave, a two-valve lo-loss with a ¼" glass panel (THE rx in those days), and several others.

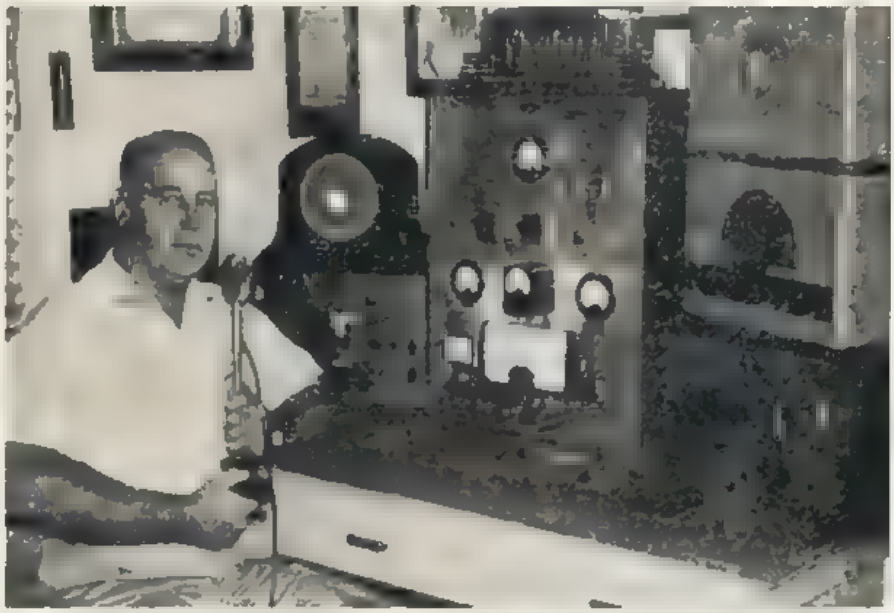
VK4DO's Cubical Quad.

Today the station is as shown in the photograph, the equipment being as follows (left to right): a Kingsley K/CR/11 Rx with speaker above; all band transmitter with single 807 final; bottom right, Hallicrafters Rx, with A.W.A. Rx and speaker above. Automatic key and hand key are on the table. The signal squirter equipment is a cubical quad for 14 Mc., another quad for 21 Mc., and a 10 foot high centre fed V for 7 Mc.

Hal has never been a high power man. Over the years never more than 60 watts have been used and now only half that power is used. Notwithstanding the low power, the following results have been obtained. In June 1926 two-way contacts with U.S.A. using 140 volts on a 201A receiving tube; in the same month heard in ZL (200 miles) using 90 volts high tension and loop modulation. October 1936 W.A.C. in 50 minutes with 48 watts; February 1948 record W.A.C. on phone in 28 minutes with an input of 60 watts.

VK4DO was second in Australia in 1924 "Wireless Weekly" Tests; made a foundation member of the Rag Chewers Club in July 1926, Queensland winner of the 1926 Trans-Pacific Tests, and the Jewell Miles-Per-Watt Contest; in 1937 awarded First Prize by "Short Wave and Television" of U.S.A. for best Amateur Station; worked all U.S.A. States in one year, from August 1946 to 1947; is holder of D.X.C.C., W.A.C., W.A.P., W.A.S., W.A.Z., H.A.R.C.E.N. and other awards, and apart from holding Worked All Zones Certificate for c.w. has qualified for W.A.Z. on phone. Active in R.D., VK-ZL, A.R.R.L. and other yearly contests, his station has gained several places in these over the years, and, incidentally, he holds a First Class P.M.G. ticket.

Forty years is a long time in Amateur Radio, but time has not dimmed the interest of this old timer.



Harold L. Hobler and his Station VK4DO

* 134 Victoria Parade, Rockhampton, Q'land.

INTRODUCING THE SW-100 SERIES—

S.S.B. TRANSCEIVER

★ ★ ★ ★ MOBILE
★ ★ ★ PORTABLE
★ HOME STATION

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SW-140	7.0 „ 7.15 Mc.	Lower
SW-120	14.2 „ 14.35 Mc.	Upper
SW-115	21.25 „ 21.45 Mc.	Upper

★ **Rugged, high quality construction** with simplified circuitry provides an unusually high degree of reliability.

★ **150 watts** p.e.p. input to 6DQ5 power amplifier.

★ High frequency crystal lattice filter; 3 Kc. nominal bandwidth, used for both transmit and receive.

★ Unwanted sideband down approximately 40 db. Carrier suppression approximately 50 db.

★ Transmits automatically on receiving frequency.

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★ Receiver sensitivity less than 1 microvolt at 50 ohm input.

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★ Control system designed for greatest ease of mobile operation. Front panel controls include: Main Tuning, Volume, Carrier Balance, Microphone Gain, Exciter Tune, P.A. Tune, P.A. Load, T-R Switch, Supply On-Off Switch, and Tune Switch.

★ Main Tuning control is firm and smooth, with 16 : 1 tuning ratio. Calibrated in 2 Kc. increments.

★ Transceiver produces approximately 25 watts carrier output on a.m. by simply adjusting the Carrier Balance control. Receives a.m. signals very satisfactorily.

★ Three-Circuit microphone jack provides for push-to-talk operation.

★ **Power Supply requirements:**
275v. d.c., nominal, at 90 mA., receive and transmit.
650v. d.c., nominal, at 25-250 mA., transmit only.
80v. d.c., negative bias, at 6 mA., receive and transmit.
12.6v. a.c. or d.c. at 3.45 amperes, for filaments.

★ Price includes mobile mounting bracket and power connecting plug. Does not include power supply and microphone.

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AUSTRALIAN V.H.F. RECORDS

D. H. RANKIN, VK3QV*

IT is appropriate that a short article on Australian v.h.f. records should appear. For this reason, and also because of the number of long distance contacts made over the past 12 months, particularly in the 144 Mc. allocation, some explanation of why records are kept and how to submit a claim for recognition of a contact is in order.

It has become evident to those relatively few v.h.f. operators who have spent some years consistently working on the bands that the majority of active call signs heard change from year to year, and that the achievements of the past become forgotten. Thus, there must be some authoritative source to which the newcomer can refer to ascertain the longest distance worked, or if a certain country or state has been worked on a particular band.

Obviously, then, some responsible body must collect, and keep, a file of such information which of course must be derived from reliable sources. Therefore, some years ago, the Federal Executive of the W.I.A. commenced a collection of contacts made on the bands 50 Mc. and above. The data so collected was, and still is, based on claims made by the actual participants. Appended are those claims currently on file. For the last couple of years, it has been the duty of the author to deal with received claims—collecting the information, having distances checked, and forwarding amendments to "Amateur Radio" and to the various Federal Councillors.

Since QSL cards are not always available, or in cases where cards are to hand, but the claimants are reticent about parting with a valuable QSL, then a signed declaration by one of the participants has been deemed acceptable proof of the validity of the claim. The information that must be sent with such a declaration should include the following:—

1. The call sign of the station worked.
2. The band on which the contact was made.
3. The date of the contact.
4. The location of **both** stations at the time the contact was made. Unless the latitude and longitude are accurately known, the name of the suburb or place should be given with the distance and direction from some well known place nearby, e.g. 10 miles east of the G.P.O., or the location should be given with reference to some prominent geographical feature.

Particular care should be taken when short distances are involved, i.e. for contacts on the u.h.f. bands. All distances are computed from the latitude and longitude figures for each station using Napier's Half Tangent formula or the Spherical Cosine formula.[1] If accurate figures are not given, they are taken from a gazetteer used by the Australian Survey Corps.

* Federal V.h.f. Manager, C/o. Box 2611W, G.P.O., Melbourne, Vic.

From the list below, and comparing it with a similar list that appears in "QST" periodically, it can be seen that particularly for 144 Mc., the Australasian records are of world standing. Bettering these distances is no easy task and to help keep interest alive, the best contacts associated with each State for each band as well as other unusual and meritorious contacts have been published in recent issues of "Amateur Radio".[2]

It is realised that these records are not completely up to date, but if the reliability of the list is to be preserved then nothing much can be done to improve this state of affairs until those who have better claims put them forward. Thus, if **you** are in this position, for the sake of other v.h.f. operators, if not for your own, submit your claim and let everyone know of your effort. Letters may be sent to the author at the address shown.

BIBLIOGRAPHY

1. "Reference Data for Radio Engineers." American I.T. and T. publication, 4th edition.
2. "Amateur Radio," Vol. 30, No. 7, July 1962, p.22.

LIST OF DISTANCE CLAIMS

The following is a list of distance claims held on file by Federal Executive of the W.I.A.:—

50 Mc.—

VK3ALZ-XE1FU	1/5/59	8418	miles
VK5BE-JA8BP	30/10/58	6490	"
VK2ABR JA8BP	25/2/59	6397	"
VK2HE JA8BP	28/3/59	5336	"
VK5KL-W7ACS/KH6	26/8/47	5361	"
VK2RU-JA1ANO	1/4/56	4809	"
VK4NG-JA1AHS	22/1/56	4140	"
VK6HK-VR2CG	3/1/55	3935	"
VK6WG-VR2CG	3/1/55	3818	"
VK6BE-9M2DQ	19/4/58	2853	"
	30/9/59		
VK9DB-ZL3GS	26/12/53	2809	"
VK3IM-VR2CB	30/12/53	2396	"
VK7BQ/7LZ-VK9DB	———	2205	"

144 Mc.—

VK3ASZ/3-ZL3AQ	31/12/61	1343	miles
VK5GL-VK6BO	30/12/51	1322	"
VK5QR-VK6BO	9/2/52	1319	"
VK2AH-ZL3AR	15/12/51	1307	"
VK4HD-VK5ZK/5	27/12/61	1040	"
VK3ZEA-VK4HD	27/12/61	954	"
VK3ZCS-VK4HD	27/12/61	937	"
VK4HD-VK5BC	27/12/61	636	"
VK3APF-VK4HD	27/12/61	607	"
VK5BC-VK7LZ	29/4/59	609	"
VK3ZAL*-VK5BC	18/1/58	600	"
VK5BC-VK7PF	26/4/59	571	"
VK3ZCW-VK7LZ	———	511	"
VK3GM/3-VK7LZ/7PF	9/2/52	511	"

* Now VK3RX.

288 Mc.—

VK3ALZ-VK7LZ	10/1/60	383	"
VK5AW-VK3ZCG	23/1/61	361	"
VK5RO/5-VK5MT/5	13/4/52	106	"
VK3GM/3-VK3AAP/ 3ZBK/3	29/1/56	79	"
VK3AFJ/3-VK3AAF/3	21/3/54	63	"

576 Mc.—

VK3AKE-VK3ANW	11/12/49	80.1	"

2300 Mc.—

VK3XA-VK3ANW	18/2/50	9.0	"

N.Z.A.R.T. MEMORIAL CONTEST

Australian Results

This Contest (80 metres only) is to commemorate the Silent Keys of World War II. The following are the results of the Australian entries. Certificates have been forwarded to those marked with an asterisk.

	No. of QSOs				
	ZL1	ZL2	ZL3	ZL4	Pts.
*VK2QL	20	17	4	6	376
VK2RA	19	16	2	4	328
VK2VN	14	9	1	5	298
*VK3AKN	19	11	3	2	305
*VK4SS	16	15	6	3	283
VK4HZ	8	4	3	2	217
VK4CK	4	2	–	1	98
*VK5ZC	7	7	–	2	197
VK5LD	7	4	–	1	153
*VK7SM	19	19	7	8	424
VK7RY	3	4	1	2	140
*L2033	17	15	9	8	433

VHF

50 – 144 – 288 – 576 – 1296 Mc.

Sub Editor: BILL ROPER, VK3ARZ,
Lot 59, Orchard Street, Mount Waverley, Victoria
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

Sideband transmissions are at long last becoming more popular on the v.h.f bands. The 50 Mc band has had a respectable number of s.s.b. stations operating for some time now But, until recently, s.s.b. on the 144 Mc band has been a rarity and, to the best of my knowledge, the 288 Mc s.s.b. transmitter of Lance 3AHL is the only one on the higher frequencies.

We all know of the advantages of sideband transmissions over a.m. (do we?). At the moment, of course, the frequency saving characteristics of s.s.b. are not of any great importance on v.h.f. Double sideband transmissions do not boast this advantage in any

However, the big attraction of sideband is the worthwhile increase in talk-power. For some strange reason this seems to be a tremendous increase over a.m transmissions of equivalent power on v.h.f.

When you consider the DX that has been worked with modified 522 tx's, etc., running about 10 watts r.f. output, it does not take much thought to realise the capabilities of sideband, particularly when you realise the ease with which sideband power can be amplified to over 100 watts p.e.p.

D.s.b. tx's are extremely easy to construct and get operating. In fact, normally easier than an a.m. tx and attendant modulator

However, d.s.b. has the distinct disadvantage that it is much more difficult to tune and resolve at the receiving end than other modes and probably because of this reason, just has not "caught on" in VK land.

S.s.b. overcomes this problem to a large degree, but most people have been deterred by lack of information on v.h.f. s.s.b. rigs and also the apparent complexity of the equipment.

For those of you who want something simple, Don Stoner's v.h.f. section in "CQ" magazine for Sept. and Oct. 1962 describes a simple s.s.b. exciter that works extremely well. Also, "CQ" for Nov. 1962 promises to have some more information on this subject.

I hope that Bud VK3AQJ, s.s.b. sub-editor, does not mind me "pinching" some of his thunder, and I hope that if Pansy sneaks a look at the v.h.f. notes he does not get too upset at the thought of someone else advocating the use of "Donald Duck" transmissions.

I must apologise for the non-appearance of v.h.f. notes in the Dec. issue, but unfortunately I spent several days in bed at the crucial time (the absolutely last day for submitting notes for publication) with influenza, and in all the self-pity completely forgot about the notes until too late. Melbourne's four-seasons-in-one-day weather permitting, I hope this will not happen again.

The only notes to reach me in time for publication in this issue are those from Roy 9AM, so I have presented the notes intended for Dec issue in an edited form.

Does anybody read the v.h.f. notes? In 12 months of subscribing I have received not one single comment or criticism (except to be abused for non-appearance of Dec. notes)

Have you any suggestions for improving the appearance of the v.h.f. page? If so, let me know about your thoughts.

Several months ago I suggested that we introduce a v.h.f. hints and kinks section. Like most of my suggestions, this one met with loud loads of silence. How about it? If you approve send some ideas along to me

The Ross Hull Contest should be in full swing as you read this. (Has anyone read this far?!. Do not forget to submit your log and give the new Contest Committee something to keep them quiet.

You will probably read elsewhere in this magazine of the untimely passing of Tom VK3JW Tom was a very keen v.h.f. Amateur and was regularly heard and worked in Melbourne on 144 Mc. I am sure that all v.h.f Amateurs will join with me in offering deepest sympathy to Tom's family.

Trev ZL2HP is a very keen 144 Mc enthusiast and will be looking for contacts with VK on this band during the summer months. A few more details, plus Trev's address, appeared on page 4 of Dec. "A.R."

Finally, a happy and prosperous New Year to you all and may the DX be better than ever Start the New Year off the right way by enthusiastically participating in the Ross Hull Contest. 73, VK3ARZ.

NEW SOUTH WALES

First may I extend all the best for '63 to all v.h.f. operators everywhere from the VK2 Group. Things have been fairly quite at this end of the State. Six mx has come to light with a few good openings, bringing DX rewards to the regulars. On 2 mx, many new stations keep appearing, both new call signs and an increasing number of h.f. operators--trying to escape some of the problems of 40 and 20 mx.

The regular field events have been held and the Nov. night fox hunt produced some 18 cars containing between 50 and 60 people. The fox for the evening were 2APQ and 2BW, who were still hiding on the headland above the Lugarno ferry when Dick 2ZCF appeared in record time. Grahame 2ZXY was close behind, just beating Bob 2OA. After that it was a matter of bringing the rest in from many sides of Sydney. By the way, would anybody be willing to swap a couple of navigators for some automatic d.f. equipment?

It would be a good idea in 1963 for all Groups to get together on the dates for field days. In VK2 the second Sunday of each month is generally used for day events, while the night fox hunt is on the fourth Wednesday night at 8 p.m.

There will no V.h.f. Group meeting held in January, many of our members being away on holidays. The night fox hunt will be on the 23rd with Grant (better known as Joe) 2ZOO hiding the rig plus half a dozen batteries —must be a long trip to the south if the starting point at the Gladesville Reserve overlooking Parramatta River holds any clues. Next month Basil 2ZLB will be back from leave and pushing the pen for notes for this page. 73 de Tim.

VICTORIA

50 Mc.: The only activity reported on this band during Oct. were openings to VK4 on 29th. 29th and 30th. Several VK4s took part in the 6 mx scramble on that evening (Sun. 28th), the result being a draw between Neil 2ZJN and John 2ZLQ. In all, 14 stations participated in the scramble, making it the most successful for some time.

144 Mc.: The northern direction from Melbourne has produced quite a lot of good contacts of late. Rex 3VL at Numurkah has worked Alan 3ZNB at Anderson and Peter 3ZLT in Melb. Rex looks for Melb. stations at 6.30 each evening and is usually to be heard working 3ZLT. Peter also has had contacts with Bid 3CI at Nagamble. Peter 3APF at Shepparton 3ACK at Mooroopna and has heard 3ZOG at Yarrawonga and 2ZCI at Leeton. Ray 3ATN at Birchip was consistent in Melb. early in Oct., but is believed to be having antenna troubles. Ray has lent Greg 3AWT at Wasia a small 2 mx tx but Greg is making hay at the moment.

As well as 2ZCI at Leeton, there is 2ZCB, also at Leeton, and 2ZEC at Griffith and all of them are believed to have worked as far south as Sid 3CI at Nagamble. Here is a list of approx. freqs. of these stations: 3VL 144.14, Sid 3CI 144.17, 3APF 144.17, 3ACK 144.18, 2ZCI 144.31, 3ATN 144.43, 3AWT 144.34, 2ZCB 144 17, and 2ZEC 144.02.

It may be useful to list the monthly v.h.f activities. They are as follows: 2nd Sunday of each month 2 mx scramble, 4th Sunday 6 mx scramble, 2nd Wednesday 2 mx fox hunt, and the 3rd Wednesday V.h.f. Group meeting. Both scrambles commence at 1945K, the fox hunt at 2000K in College Cres. at the rear of the University, and the V h.f. Group meeting at 2000K at the rooms at 478 Victoria Pde East Melb. Please note the change of address of the Publicity Officer. 3ZLT finally settled down at 4 Waratah St. Thomastown. If you have any news to be publicised in VK3 drop him a line or give him a shout on 2 mx, Friday evenings between 1900 and 2000 hrs. 73, 3ZLT.

QUEENSLAND

The month ending 31/10/62 provided some good DX openings in VK4. On 8/10/62 VK3 stations were audible at good strength, with a number of s.s.b. stations being worked. From 13/10/62 till 17/10/62 the path to Japan was open from Brisbane with stations audible for two to three hours daily.

The best opening was on the 16th with JA8IK the strongest station, peaking at S9 plus with QSB to S6. The lack of JA stations operating was limiting factor of the openings. JA1-2-3-4-5-8 were the calls worked.

VK4NG in Rockhampton has been working Japan quite often recently, one novel mobile station worked by him was a JA running 6w. to a 2E2M final, with the station mounted on a motor-bike. There have been more JA DX openings in North Queensland, with the openings in Brisbane getting fewer. In the last few days of Oct. short openings to VK3-2-5 have taken place with strong signals for the duration of the opening.

So far no DX has been heard on 144 Mc. and the VK4 gang are looking for more DX contacts during the coming season.

A new station on the 50 Mc. band is Frank 4ZAB, who is using a converted 522 tx with a home-built rx and a cubical quad aerial, New stations are doubtful about coming on to 50 Mc. until operation with t.v. receivers only 2 Mc. away has been tried. 73, 4ZAW

SOUTH AUSTRALIA

50 Mc.: The exceptional conditions on this band over the past few months have attracted a large number of newcomers. These include John 5ZJG, Peter 5ZEZ, Bevan 5ZCS, Ian 5ZIC, Dave 5DS and Harry 5KW Another newcomer is Bob 5ZRM who is the brother of Colin 5ZDB. Peter 5ZEZ (mentioned earlier) is the brother of George 5ZEY

Jack 5ZJS is building a v.f.o. for 50 Mc and Bob 5ZDX is building a phasing type s.s.b. generator. Newcomer Harry 5KW is located next door to Bob 5ZJT, so by the time you read this, Bob should be well and truly up the wall, as Harry is running 70w. Colin 5ZDB has a very interesting mobile on 6. This unit can run either a.m. or d.s.b., the latter giving approx better S/N. ratios.

DX activity on this band has been excellent. During October VK3-4-8 were worked. the first two on several occasions. 3ZVL was worked on s.s.b. On Oct. 28 at 1400 C.S.T a few JAs were heard, Bob 5ZDX called several stations but unhappily no contacts were made.

One of the more interesting signals heard from VK8 was an m.c.w beacon signing 6MM. There has been considerable speculation regarding this beacon, but no one seems to have definite information.

The one and only Amateur Station at Woomera, 5WC has built gear for 50 Mc, and is on every evening from 1615 to 1930 hrs. C.S.T. on 50.2 Mc. looking for contacts. No details of gear.

144 Mc.: Activity on this band should now pick up considerably as Mick 5ZDR is back in Adelaide after several months in the bush. Also new country stations have come up on 144. These include 5NW at Crystal Brook (30w. 144.15 Mc) and 5EN at Port Pirie. Both of these chaps have been working into Adelaide with good signals (both 130 miles away). New stations on 144 Mc. in Adelaide include 5ZEY

General News. Many limited licensees are sitting for their c.w exam. The last exam saw 5ZBL, 5ZJG, 5ZCC, 5ZDC, 5ZDN, 5ZMK and 5ZMK's XYL Rosy. Most seem optimistic of results. Keith 5ZKL and Trevor 5ZTX are newcomers on 288 Mc. 5ZAD's new v.f.o. for 6 mx is working nicely Garry 5ZK is building s.s.b for the low bands. Keith 5ZMK and Brian 5ZBR have acquired towers. There are at least three active v.h.f. stations in Mt. Gambier now 5ZER, 5ZGS and 5ZLS. Dale 5ZER has his 2 mx antenna on a 115 ft. tower, so keep an ear open for these boys. 73, 5ZCR.

TASMANIA

The first Convention to be held in this State took place at Campbell Town on 24th Nov and a good number of v.h.f. exponents attended to contest the many events.

144 Mc.: A 2 mx link was provided between h.f stations participating in the Jamboree on the Air, information regarding h.f. contacts being relayed back to VK7WI for publicity purposes. Nets of this type will be a pleasure to work in when the official frequency crystals finally arrive.

Two new stations have fired up on this band recently. They are Rick 7ZAT and John 7ZOO. I have not heard Rick yet but I understand he has a pair of 7193s and a t.v. turret

(Continued on Page 24)

DX

VP4, OA4, BV, ZM7, 7G1, FP, AC5, MP4, ZC6, TY2

Sub Editor: ALAN SHAWSMITH, VK4SS, (Phone 4-6536—7 a.m.-4 p.m.)
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ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

One of the arts of working DX is to listen at the optimum times on the correct band. The night bands, viz. 160, 80, and 40 metres, are best to the East between 0830-1130z. 14 Mc. has openings to the East from as early as 0200z, and from 1000z the circuits West open up. 15 metres is usually open to W and JA during the day. Shortly after noon, there sometimes occurs a short opening to South America and Africa.

Too often one hears directional CQs from VKs with little hope of results.

NOTES AND NEWS

FI8AX has been heard on 14040 kc. at 1400z. (Have no other info.)

Several 9M8s are workable on 7 Mc. around 1800z.

4S7NE and 8O1ND also work 7 Mc. around 1900-2000z.

If you still want VS4RS, try 7004 kc. around 1000z, if no sign of him on 14 Mc.

VR4CU is active on s.m. at least. Try 0800z around 14180.

A few VKs are active on 80 and 20 mx. They are VK8UT, VK8HA, VK8UX, etc., 0800-1200z.

XZ2KN is on 14060 Kc. about 1100z.

By courtesy of Bev Cavender, W4CKB, of the Florida DX Report, we report the following.

K9IDZ plans to go to Rota as KG6RD soon.

Marion Island ZS2MI continues to show on Sundays around 2000z, 14018 kc.

Shankar, VU2AX, ex FN8AD/AC4AX, arrived for a tour of duty in Sikkim on Oct 8. W4QCW is corresponding with him, and if things work out satisfactorily, the Yasme Foundation is prepared to send him a HT37 rig and SX101 rx. W4QCW will be the QSL manager. Present Sino-Indian border war may force a delay in this.

Frank, W8AYN, ex-EP2AT, awaits arrival of KWM2 rig, after which he will be very active as HL8X in Seoul, Korea. QSL to Frank Borsody, U.S.O.M., T.C./P.S., A.P.O. 301, San Francisco, California.

The Marcus Island DX-pedition is off.

FR8ZZ should be operated by ex-TT8AG this month.

Spitsbergen (Svalbard) LA8RG/P and LA-1IH/P are active on 14 Mc. s.s.b. now.

These following items to hand by courtesy of Bob Murphy, K6CQM, of The DXer.

Ecuador HC0NE is currently active from a mountain operating site, on week-ends. Wkd on 14 Mc. c.w., he is also reported to be active on 21 Mc. c.w. QSLs go to Box 2951, Quito, Ecuador.

Heard Is.: Steve VK0VK expects to be operational from Heard Is. for approx. one month as of mid-January 1963. Steve, a member of the Australian National Antarctic Research Expedition, will depart from Melbourne roughly 1st Jan. '63 on an Australian-leased Danish polar vessel. The vessel will call at Heard Is. where Steve will be a member of a shore party who will conduct a short programme on the island. While on the Island, Steve will be as active as possible. Primary activity will be on 20 and 40 mx, c.w. and s.m., with a possibility of s.s.b. Primary c.w. freq. will be multiples of 3503, i.e. 7006, 14012, etc., with calls taken 3 kc. up or down. Primary s.m., if used, will be on 14120. QSLs for the Heard Is. operation only will be via K5ADQ. After the Heard stunt, Steve will continue to Wilkes Base, where he will winter over, and where we can expect a repeat of his fine operation when he wintered over at Wilkes last year.

Sudan: ST2AR has now returned to Khartoum after U.K. leave, taking with him a partly completed imp. exciter. Crystals will be for 14113, 14250, 14300 and 14323 kc. Eric hopes to be on the air in the near future and will welcome hearing from anybody who has built the imp. and has discovered any worthwhile modification.

Kamaran Is.: VS9AAA will give firm dates for his Kamaran Is. trip when his KWM1 is returned from the U.K. after overhaul.

Ethiopia ET3RS was a recent guest at the N.C.D.X.C. meeting. He is ex-HB9RS and works for the U.N. in Addis Ababa, Ethiopia. He will be back in ET3 land shortly. He operates 20 and 15 s.s.b. exclusively, mostly between 14100-150. He also said that he is the only active licensee in ET3 now. QTH: M. C. de Heneeler, P.O. Box 3005, Addis Ababa, Ethiopia.

Danny Weil, of the Yasme Foundation, is still peeling them from ZM8AW every afternoon on 14060, 14135 and 7010 kc. Next stop may be ZM7, but nothing is finalised yet.

Gus W4BPD is keeping busy down on Gough Is. with the ZD9AM; however, he may be QRT in a day or so.

VK5XK COMMENTS ON HIS L.H. TRIP

Now follows some comments from Arch VK5XK on his visit to Lord Howe Island:

After visiting Norfolk Island in 1961 it was decided to visit Lord Howe Island during late Oct. and early Nov. (1962). The trusty Type 3 Mk. II. transceiver was in action once again in the South Pacific. During the last week of Oct. radio conditions on all bands were very erratic and short skip prevailed. Later, conditions improved, with the exception to eastwards, all other compass points were contacted. During the whole 2½ weeks, signals to the American continents were weak in both directions. Despite beaming sigs at W land, for some unknown reason, it was hard to QSO. It was remarkable to be sought after by hundreds of W stations and be told of solid signal reports from Lord Howe and W from VK stations, and yet not being able to penetrate the seemingly iron curtain. Only 30 W stations were QSOed and the sleep hours lost in W land could not be estimated. Only one VE and one LU were weakly heard but not QSOed. 88 VK QSOs were had. European, Russian and some 25 countries nearer were contacted. Spain was the best European contact. The most outstanding and consistent VK signal came from VK5JE. One outstanding feature was that notwithstanding the poor band conditions, c.w. signals could always be heard on the bands in the complete absence of any type of phone signals.

Some odd spots! He answered a DX CQ from a VK who politely sidestepped with "Looking for a new country!!" Later on, discovering a Lord Howe station on the air, he seemingly wore out two sets of key points calling VK-5XK/P, who had the pleasure in contacting him before closing down! Arch adds, "I was given 'sec.' while a VK7 lined his antenna up on my home VK5 QTH."

The holiday was most enjoyable. The view from the flying boat over Sydney and harbour on a Saturday night could only be described as magnificent. Despite conditions, Norfolk Is. is much preferable for Amateur Radio, but Arch considers the Lord Howe terrain may offer a reason. Perhaps the coral and solid hills at Lord Howe may have acted as a screen in one direction. Arch adds a P.S.' "The only sour point was the local who pestered me for a reason for the non reception of 21 Mc. sigs from VK5PS on the 7 Mc. band. Words failed me!!"

ACTIVITIES

Chas LZ1I heard these: 14 Mc. a.m., 1800-2000 E.A.S.T.: VS4RS, HK3AFV, HK3RQ, HP-1JC, HC2RT, LU8GF, LU4NB, KR6AW, KG-6ALK, JA1YM, PY1ANX, JA6GW, JA1BWA, VS6EW, VS6FA, JA3BI, JA3ANX, HK7AJP, HC2JT, 11SM. 15 Mc. 1500-1700. a.m. JA-1AWV JA2BSM JA3EBJ JA3CKB.

Graham VK2AGH sends in the following. 7 Mc. c.w. G2FMV G3JAG, G3GM, YV5ANT, W1DZL, ZE. 14 Mc. c.w. ZK1BY UC2AA, G3AVZ, ZK1AB UD6DU CR8AC, VS1FU, HP-1IE, LU8BAJ HB9VW 5N2JKO, DL7CS, ZD-8AM, AP5AH, VS9ARK. ZM6AW, UA9FF 21 Mc. c.w. JA5ADR, VS1FJ, F2MA, ZS1OU, DL3AR. 14 Mc. phone GI3HCG, PY1BLT QSLs rcd. CR8AC, CE9AD. AP5CP, VQ9AA, W0MLY, TJ8, TT8, TL8, 9N1MM, VP2MC.

Al VK4SS logged these: 3.5 Mc. c.w. VK-5XK/P (Lord Howe), YU2OB, JA6AK ZK-1AH, VR5AA. 7 Mc. c.w. DL6CV, DJ1ZN, YU1NE. YO3CY, YO5TJ, ZK1BY, HM4AQ, HA5KFZ, HA2KGC, YU1JRS, YU1HFG, SM-5CCE, SM7BUE, ZD8JJ, 5B4IP, 5B4BP, ZB1CR, UA3XS. UB5ZJ UA1NZ, UA0WL, UA0FF, UA-9UB. ST2AR DJ5FZ, DJ3JA, DL1KS, DJ7IK, DM3KHM, DJ2RE, GW3AX, G3SDA, G3RDC, G5DQ G3JAG G3FXB, G3FUN, JT1AGA, 9M2FZ 9M2HI 8O1ND, VS1LD VS1FZ, VS1LJ, XE1OK ZC5FF DU6TY, VS4RS, K7GOK/KS6, 4X4WF 4X4OH. OE6KZ, OE1RZ, DE1UA, 4S-7NE. VQ2W, OK1AFC, OK1UR. OK1AFN, UF8UA, OK1FV, SP8CK, UA9PP, YU4AAH, YU2AAT, UA3FG, G3ALP, G3OPP, DL1DV, UO5PK, SP8KJ, SP2RS, DL1KS, VK5XK/P (Lord Howe), VQ4IV, HL9KH, G2BC, G3BO, DL7DR, G3PZK, G3JEO. 14 Mc. c.w.: ZC5FF, VR3O, JT1KAA, KS6AN, CR8AC, KR6RE, EA-8DO, KC6BK, 9U5ZZ, VP6LJ, VQ2AB, 3A2BP, AP5AH. AP5JA, VR3L, ZZ2KN, VP7NT, VQ-4ET, 8O1ND, HK7BE, ZM6AW, LU8FA, OA-4CG, DU1RTL. 21 Mc. c.w.: HP1IE, KP4AZ.

Ken VK3TL worked on 20 mx c.w.: AP5AH, AP5BS, CP3CN, CR7IZ (1340z), DJ2, DJ7, DL8, DL9, EA1GZ, F2, F7, G2, G3, G4, G5, G6, G8, GC3CNC, GI3NPU, HA7KPF, HB9PV, HZ1AB (1250z), K5VQS/KS6, KX6, KZ5MQ, KV4CI/MM, LA3DB, OA4, OK1, OK3, OZ8FH, SM-7CAB, UA3, UA4, UA8, UA9, UB5, UC2KAB, UD6, UG6KAA, UI8FB, UP2AG, UP2OK, UQ-2KDD, UQ2CC, UT5, UW8, VE3LI/2 (0838z), VP7NQ (1330z), VQ4ET (1356z), VQ4IV (1715z), VS1AU, VS4RS, YO4KAK, YU3YU, YU3EC, ZK1BY, ZM6AW, 8O1ND (1355z), 9M2. 10 mx phone: BV1USF, CE3KA, CN8FU (0955z), K6DXH/CN8, DJ1, DJ3, DJ5, DL1, DL4, DL6, DL9, EP2AC, F7, G3, G8, HC1DC, KR6, KS6AN, KV4, LZ2KBA (1545z), MP4BBW (1335z), OH1, PA0WQ, PA0FX, SP8FR, UA1KBW, UB5, VQ-4RF (1245z). VR2, VR3O, VR5AA, VU2, XE1, YV5, ZK1BY, ZM6AW, 5R8CM (1310z). 40 mx c.w.: DJ8AA, KN7, WH6EVH, WN6, WN6, VR3EH, VS1LJ, 4X4DK.

ADDRESSES

9U5AS—Rwanda. QSL via ON4HX.
5X5IG—Uganda. QSL via W3CTN.
ET3RC—QSL K1KOH.
VP2RS—Box 547, Atkinson Field, Brit. Guiana, or via op. W4CAA.
VU2JA—Joe, Bangalore. QSL via W6YWX.
HI8CLU—QSL via K4BMS.
VQ2AB—QSL via W6BAT.
PJ5MC—QSL via W3ZQ.
XT2Z—QSL via K4TWF.
KP6AX—QSL via K1AZA.
FP8ZI via QA2PV
VR5AR—Via W6EXE.
ZD6JJ—Ivan. QSL ZD8JJ. QSLs for this prefix go via the ZE Bureau.
VP2KP/A—Box 161, St. Kitts (Anguilla DX-pedition).
ET3JK—P.O. Box 554, Addis Ababa, or via K3HQJ
VP7NT—Box 5276, Carginia, Nassau.
ZM6AW—Via W6EWS.
HL9KH—Via W9VZP
EA8DO—Box 215, Tenerife.
CR8AR—For those wanting this call, his new call is now CT1LL.

With the present low in Sunspot Cycle, conditions for 1963 can only be somewhat worse than the year past. However, good DX will be wkd. with 7 Mc. probably the best overall band. Here's wishing you all new prefixes, new friends, and Health and Prosperity in 1963—and, please let us have some new contributors to this column.

See you in the New Year, 73, Al VK4SS.

It is with pleasure that the Publications Committee announce that they have decided to grant four awards for technical articles published in the 1962 editions of "A.R."

The following articles have received the awards (listed in the order shown in the annual Index):

"Matters Mobile," August "A.R." by K. Woodward, VK2ZAU.

"Simplified High Performance 2 Metre Converter," November "A.R.," by W. M. Rice, VK3ABP.

"A V.h.f. Sideband Rig," October "A.R.," by I. Berwick, VK3ALZ.

"A 100W Bandswitched Phasing S.s.b. Transmitter," October "A.R.," by A. S. Mather, VK2JZ.

Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

S.S.B. POWER MEASUREMENTS

Editor "A.R.," Dear Sir,

I support the remarks of VK3CS in his article on s.s.b. power measurement. To anyone who has had any experience with s.s.b., peak power measurement by the oscilloscope method is the only logical approach to the measurement of power in the s.b. final amplifier.

The snag of course is the time and the complexity of equipment involved in making a measurement, although as VK3CS pointed out, every s.b. station has, or should have, a c.r.o. and audio sig.-gen. at hand. Yes even the users of commercial gear

From the point of view of simplicity, the F.C.C. method* has a lot to recommend it, but is hardly a precise method.

From where I stand, the policy I would prefer the Department to adopt is this:

(1) Use B.P.O. standard for the power limit, i.e. p.e.p. shall not exceed 800 watts.
(2) Ensure that Amateurs cannot blatantly exceed this limit by the use of large final tubes and big power supplies.

In other words, if the final has a plate dissipation of 100 watts and/or the final supply is conservative to 150 watts average power you are OK.

But if the final dissipation rating is 800 watts and the supply conservative to a k.w., it is n.b.g. regardless of whether s.l.c. is used or not. The reasoning behind this line of reasoning is a little obscure but perfectly logical.

In the first place it does away with the necessity of continuously monitoring peak power visually.

Everyone knows that if the final and its associated supply is conservative to half a k.w. it is easy to exceed the legal limit by speaking a little louder or just turning up the gain. On the other hand, if the supply and final is conservative only to the legal limit, driving such a device harder invariably results in non-linearity—in other words, splatter—about which one is usually told in short order. Hence there is no future in trying to exceed the legal limit with such a device.

By enforcing power measurement checks only when it is suspicious of ratings of the final and associated components, the Department would save both itself and the Amateur a lot of trouble.

—L F Berwick, VK3ALZ.

YOUTH RADIO CLUBS

Editor "A.R.," Dear Sir,

In reply to the Federal Comment on Youth Radio Clubs in November "A.R." and a letter by Eric Trebilcock in an earlier issue this year, I would like to put forward a plea for greater assistance in the conduct of Youth Radio Clubs.

During the past three years I have been conducting a School Radio Club with an average attendance of thirty members and although I have appealed through your columns and received some equipment, much of it has not been of a great deal of use. Most of the radio sets were almost beyond repair or so badly out of alignment (and as I haven't an oscillator) that I had to spend many valuable hours getting something working in them.

Most of our members are under 15 years and are not able to do a great deal for themselves. Two have this year become junior associate members of the W.I.A.

Your notes only mention High School Clubs, but in Victoria we have many Technical Schools, such as ours, where it should not be hard to start a Radio Club.

For years now I have been constantly in touch with Rex Black, VK3YA, and have been using some of the ideas in N.S.W. course of instruction. The cost of parts, particularly tuning condensers and earphones, prohibits many boys making even a crystal set; some 18 of our club have, three ventured into transistor sets and a few have dual wave sets fitted with a special bandspread tuner I have helped them add to the set. The special short wave set, described by me in the Feb. '62 issue of "A.R.," is very helpful and gives some satisfaction and a taste of better s.w. listening.

Re the lack of interest in the VK/ZL DX Contest by the VK3 S.w.l. section. One of the main reasons again is lack of finance to buy or the ability to make a really good set. Many of the twelve members listed in the DX ladder, and I do not know them all, own professionally built sets, whereas the majority of our members do not and therefore cannot compete with the above twelve. This disheartens so many beginners who may have a junk set and do all they can to get some results. Quite a number of these lads find it difficult to make parts for the converters described in "A.R." and if kits of coils, chokes, or any special parts could be produced in quantities by some of the more experienced members, it would help.

Last year I offered an A.R.R.L. Handbook for the member who produced some suitable s.w unit, adaptor or set that could be easily made by beginners but so far nothing has been produced. The offer still stands for 1963.

If our members had better sets we could expect greater participation in competitions. I may be a "purist", as mentioned on page 14, Nov. "A.R.," and after dabbling in radio now for forty years I feel that the old spirit of the true Radio Ham has been lost and unless we can do something along the lines I have mentioned, we cannot expect to hold the interest of the younger generation.

—Harry Major, WIA-L3102

* See A.R.R.L. S.B. Handbook.

TASMANIAN HAMFEST

The largest gathering ever of VK7 Amateurs, their families and friends took place at Campbelltown over the week-end of 24th and 25th November 1962, on land generously made available to our Institute by Mr J B. Muirhead. The setting was on the banks of the Macquarie River, some 200 yards or so from the main road on private property, in a nicely wooded and grassed area.

The organising committee, led by Ted 7EJ and associate Don Forthouse, did an excellent job in providing an alternator, public address system, a suitably large fire with boiling water virtually continuously available, and a programme of events plus two containers of fluid, just in case the local water supply might be impure, or such local water supply should not be to the taste of those in attendance. Full justice was done to both containers.

In the vicinity of 200 persons attended this function. The programme was as follows: A cricket match between the Southern Zone and The Rest on Saturday afternoon, followed by a scramble, with a barbecue that evening. On Sunday, there was a tx hunt both on 3.5 and 144 Mc. bands, followed by an auction of surplus gear in the afternoon.

I noticed that the following licensees were in attendance at some time or another:

From the Northern Zone: 7BQ, 7DK, 7LZ, 7PF, 7CA, 7JF, and 7ZBB. From the North-Western Zone 7KH, 7SF and 7XL. From the Southern Zone 7CT, 7JB, 7YL, 7AL, 7CH, 7KA, 7EJ, 7EB, 7AB 7ZAY, 7ZAV 7ZAO, 7ZAQ 7ZEE, 7ZAI, 7ZDM, 7ZAK, 7ZZ, 7ZOO, 7KS, 7ZAX, 7JO, 7KC, and 7LJ My humble apologies to any licensee I may have inadvertently missed out from this list.

Among associate members, I noticed Anne Landers, Don Porthouse, Geoff Ludwicx, and Gil Rignaud.

Our Divisional Publicity Officer, Ted 7EB really excelled his best efforts to date. He organised items on the radio, both before and after the Hamfest; items in the Hobart and Devonport press before the function, and items in the Hobart, Launceston and Devonport press after the function. In addition, Channel 9 filmed quite a deal of our activities, and a very respectable allocation appeared on News Reel the following night. It is possible that this film may be used in a later Week-end Magazine Congratulations Ted on a wonderful job of publicity.

I have not discovered who won the cricket match. All I have discovered is that "we won," but that comes from both teams. Den 7DK won the scramble, working about ten stations. It is rumoured that his only competitor, 7JO, went to sleep on the river bank but this must surely be only an excuse.

It was very wonderful indeed to see our Patron, 7BQ. Len was present on the Sunday and many were the eyeball QSOs he participated in.

The barbecue was a great success on the Saturday night. The 5-gallon container consumed at this barbecue evaporated in about two hours, it is reported. The arrival of Barney 7ZAK wearing a most becoming fez at about 2230 hours was greeted by a tremendous cheer, I am told, fit to waken Campbelltown, six miles away. It is alleged that Ted 7EB attempted to wake the prostrate multitude at 0630 hours by the capricious use of the public address system. Despite his best efforts, many of the prostrate slept on.

Barney 7ZAK was responsible for hiding the tx's for the tx hunt. In his inimitable style, the rigs were located on the far side of the river. Terry 7CT, not to be denied, uncovered the 3.5 Mc. rig in about 25 minutes. Several of the v.h.f. boys were immediately across the river from the spot, but there was no way over the water without a long trek through Campbelltown. The flying start for the hunt was filmed for television and it was an awesome sight, too, with about 25 vehicles jockeying for positions.

The auction in the afternoon brought forth some spirited bidding for the varied selection of disposals gear. It was pleasing to observe that the 40 or so vehicles at the Hamfest nearly all sported some form of Amateur gear, whether it be a mobile tx, Amateur band rx, direction finding gear, or merely a converter, truly a most encouraging sign of activity.

Yes, this Hamfest was a great success, and truly a definite sign of progress within the VK7 Division.

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VHF NOTES

(Continued from Page 22)

and rhombic antenna. I was pleased to provide John with his first contact. He is using the ex-Basil (ZBE) 522 tx and is receiving with a 6 element beam and t.v. turret. Danny 7ZDM has made a reappearance on the band using the ex-Basil "Walka-Phone" single tube transceiver. Ian 7ZZ has had the loan of Barney 7ZAK's 522 pending completion of his own gear, and he is active most nights around 1930. Things are definitely looking up on this band and it should be really hectic for the Athol Johnson Memorial Contest.

Schedules with the north have been resumed after a month's break and with the summer weather upon us it is hoped to establish contact soon.

80 Mc.: The only thing to report for this band is that David 7ZAY has completed a tx and converter and is hoping for great things for the coming DX season. 73, 7ZEE/T.

PAPUA

November produced one excellent opening to VK on 50 Mc. On the 20th the band opened at 0800 and numerous contacts with VK1-2-4-5 and 6 were made by 9ZBV and 9AU. The opening faded out at 1200 but the band opened again for half an hour at 2000 when VK3 was worked and VK4 heard. Another opening occurred on 23rd when VK1-4 were worked between 1745 and 2100. No other contacts were made during the month although VK6s were heard for a few minutes around 1300 on 20th, and at the same time on 24th a few VK4s and VK3s were heard for about 15 minutes.

VK8AS is now operating around 50.34 Mc. and although not heard yet in Port Moresby, was called by some VK8s on 25th and reported hearing both 9ZBV and 9AU at his QTH (Wewak, T.N.G.) on the same day. Regular skeds since have not resulted in a QSO.

9ZBV will be active on 6 mx from Rabaul, T.N.G., from mid-Dec. to early Jan. As 9CK is currently inactive with power supply troubles, it appears at the moment that your scribe may be the only VK9 Papua station active on 6 mx during the holiday season. Oh those pile-ups! Please note that 9AU gives preference to replies not made on his calling frequency.

144 Mc.: Tests are being carried out daily on 2 mx with 4KT at Townsville, so far without results. If no QSO has been made by the time these notes appear, it is likely these skeds will be discontinued until the return of the S.E. trade wind season in late February or early March.

On the one-eyed monster DX front, pictures were received from TNQ7 on 12 of the first 20 days of Nov. with excellent pictures being received for the whole transmission time (1730-2216) on the 14th, the measured signal strength here being 5 μV, off a dipole. These readings are accurate, being carried out by the local R.I. Nothing has been seen since and it appears that a nocturnal duct path exists during the season of the S.E. trade winds between Port Moresby and Townsville. Channel 2 was received on seven occasions during the month, mostly ABQ2, but on two occasions QRM was received from other Channel 2 stations, one suspected as being ABS3. The N.Z. t.v. low channel was heard also on 23rd.

Well that seems to be all the news for this month, so 73, 9AU

FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL QSL BUREAU

Oak VR8AR of Tonga Tapu whose home call is W8EKE, states that cards are presently at the printers. He estimates it will take two to three months to get them out.

Cards have been distributed for all venues in Africa from which Dick McKercher, W0MLY, operated during his recent DX-pedition to that continent.

Some cards have also been received from FC8B/FC—the first from Corsica ever sighted at this Bureau. However, those to hand are only a fraction of the total owing to many VKs. Seems to be no system in issue of cards as some VKs got two for the same QSO, others got two for separate contacts, while the majority of us got none at all! However it may be only a start.

Hal Sears, KH6LQ, stated he was visiting Australia for a few weeks covering Nov.-Dec. 1962. Anyone see him?

The QSL Bureau for Czechoslovakia sent two large despatches to this Bureau early in December. Total cards was 800. Unfortunately the entire despatch was intended for Austria! Carelessness such as this involves other Bureaux in needless heavy postage and it delays cards.

Information is to hand on the W.A.N.R. award issued by the N.R. Amateur Radio Society. Entitlement by VKs needs contacts with 10 different VQ2 stations in five different towns! Unlikely to interest any but VK3 and VK6, but full details may be had on request.

Information on the W.A.D.M. Contest 1963, held mid October, was received too late for publication in "A.R." prior to the respective events. Overseas Contest Committees should use air mail for info. on their contests or realise that matter by surface mail should be issued some months in advance of the event.

Cards through the Bureau have kept up surprisingly in view of the comparatively poor conditions obtaining through 1962. The yearly total will not be far behind that of other years.

Al Scarlatt, W3CC, is looking forward to his proposed visit to VK with XYL, Ethel, during April 1963. His unfinalised itinerary envisages stopovers in all States excepting VK8 and 7. John W6YY also expects to visit Australia again this year.

Copies of "CQ" for most months of 1962 are available for free from this Bureau. First in gets them but postage is required. Write first and if you are the lucky player, I will advise the amount of postage (if any) needed.

Here's good luck, good DX and 100 per cent. QSL returns for 1963.

—Ray Jones, VK3RJ, Manager.

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NEW SOUTH WALES

The November meeting of the N.S.W. Division was held at Wireless Institute Centre on Friday 23rd and a well attended meeting heard an excellent lecture by Harold 2AAH on a Transistorised S.s.b. Exciter. After a technical discussion, Harold produced a complete s.s.b. exciter built on a matrise board 6 x 6 inches.

Mobile operation on 7 Mc. is on the increase around the Sydney area and while most of the boys are contented with local QSOs on the move and in occasional VK3 and 4, Alec 2FM has worked VR2 and ZL on the way home from work. Active VK2s heard on 7 Mc. around Sydney are 2FM, 2SW, 2FE, 2AAH, 2FU, 2VL, 2CK, 2SG, 2AZX, 2ABO, 2AWZ, 2SD, 2KO, 2ALR and 2ANR.

VK2 Divisional Morse Practice Sessions are held nightly 7.30 to 8.15 p.m. E.A.S.T on 3560 kc. under the call sign of 2AWL. The session pattern is as follows. 10 minutes at 5 w.p.m., then 5 minutes each at 6, 7, 8, 10, 11, 12 and 14 w.p.m. There is also available a c.w. tape service, i.e. a tape will be prepared at any speed required, up to two hours duration, and forwarded to those interested free of charge. The only cost being the return postage on the tape.

This service should assist those nearing exam speed and who want, say, one hour at 14 w.p.m. or one hour at 16 w.p.m., etc. For information contact the Education Officer, Harold 2AAH.

Don't forget the N.S.W. Division's Convention over the Anniversary Week-end. 73, 2VL.

HUNTER BRANCH

The Nov. meeting of the Branch was held on Friday 9th, there being eleven members, nine associates, and four visitors present. President Stuart 2AYF was absent on business, no doubt selling steel, and Lionel 2CS was also unable to be there. Bill 2XT was on his Japanese holiday and this meant that the meeting was without a chairman. But not for long. Some of our executive officers took out their box of straws and gave me the short one. Because of all this, the business session of the meeting was quite short and then we all settled down to listen to the lecturer of the evening, Keith 2BK. He had brought with him one of those "built like a battleship" rx's complete with converters fastened to the lid and it was on the general theme of rx's that he based his remarks. Two other most interesting pieces of gear were on display, an s.s.b. transceiver and a 144 s.s.b. rig. These caused a great deal of discussion and the session of questions following Keith's talk was most valuable and showed the sharp division of thought between s.s.b. and a.m. At the conclusion there was another of those free-for-all auction sales which have become part of the Hunter Branch scene.

Around the Branch this month it seems that everyone is preparing for the festive season, so no doubt there will be plenty of activity as you read this. No sensational developments have been noted, despite the fact that several rash promises about getting gear on the air were made months back. The lads from the coaly city are still busily engaged in selling t.v. and get very little time for on the air activity but Peter 2AIY is reputed to have a quite interesting duck talking device almost complete. Ian still has a good blanket coverage of all t.v. stations from his QTH and he tells me that his landlady is complaining about the neighbours hurling missiles at the house. He has a cure though; switch it off.

During the month I was fortunate to be invited to the Radio Founders' Day Dinner of the I.R.E. to stand in for Stuart who could not attend. It was at this function that I heard a most interesting fact. Marconi was, believe it or not, an Irishman. I have this on very good authority and, although too long to tell here, I'll pass on the details to any who wish at a later date. Or you could see Prof. Auchmuty from the University College who imparted this information to those at the Dinner.

Congratulations are in order for Bill 2ZK who has been awarded a Ph.D. for some original research on sieve trays. Although he's Dr. Bill now I expect we'll still call him by the same name as always and this may be a lot easier from now on, too, because he has a brand new rx and has become an Amateur again after the long studies.

John 2DZ, of whom we hear little these days, is still quite active as time permits and has been getting some quite reliable results on 15 mx. Activity on the lakeside is much as usual with Jim 2AHT still among the DX and Bill 2ZL still the most reliable signal on the band, that is 40. I am told he has a Marconi aerial, but I believe this is open to discussion.

Our associate friend, Bruce, must be thinking of buying a car because he has been seen with a well-turned loading coil for a mobile whip. Perhaps he is going sheep mobile during time off at Scone. Four new associates have joined from the lakeside and a greeting goes out to Allan, Allen, Ray and Ross. The club station at Booragul is back on the air again after an enforced stop for examinations, but, of course, with the other lucky chalk pushers, will be off the air for another month after you read this and, just think, they've had almost three weeks already. Bill 2ZWM says he wouldn't swap his job with anyone, during the holidays. Mobile gear is being contemplated by another of our members but I am not permitted to reveal his name just now. I suppose he is getting ready for the Convention at Dural, and, from present indications there will be a good roll-up of Branch members at this function.

I suppose by this you have all made the usual resolutions. Well here's another to add to the list. I resolve not to attend the Branch meeting in January—you've guessed it, there isn't one. Next meeting is on the second Friday in February which is the 8th, and the meeting place is the University College, Tighes Hill. Make another resolve to attend this and as many other meetings as you can.

The President and the boys extend to all members the very best of wishes for a happy and successful 1963. Sincere thanks to all our lecturers for 1962 and to all others who have helped to make the Branch meetings and activities a success. Here's the hope that we all can do even better in the year to come. 73 for '63, 2AKX.

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VICTORIA

13th ANNUAL STATE CONVENTION

The State Convention of the Victorian Division was held in Ballarat on the week-end of the 3rd and 4th Nov, 1962, and hosted by the South Western Zone. The Convention went to a good start when local and visiting Hams assembled at Craig's Royal Hotel for the Convention meeting which finally started just after 4 p.m. Some lively discussion resulted and it looked as if some of the boys were willing to spend the next 48 hours thumping the table. However, parched throats and waiting XYLs won through at approx. 6 p.m.

At 7 p.m. in the Prince's Room, Craig's Royal Hotel, about 70 Hams, XYLs and guests gathered together to do justice to a seven-course Buffet Dinner. The buffet style dinner proved to be very successful as it was possible for everyone to circulate freely around the room. In fact, I am sure everyone was able to meet everyone else and from what I saw the XYLs, in particular, enjoyed the evening more than at any other Convention that I have ever been to. The guest of honour, Mr. Murray Byrne, M.L.C., was circulated freely among the groups and was undoubtedly impressed with the jovial air of Ham fellowship, which prevailed around the table. Later in the evening, The Honourable J. Dudley Erwin, M.H.R. —no stranger to the Ham fraternity—dropped in and consented to present the trophies for the gear display and lucky door competition.

The evening was diverted for a while by a short lecture on "Radio Astronomy," given by Brian 3ZBS, who gave a brief outline on the general principles of the science, mentioning hydrogen line research and the mysterious 15 metre emissions from the planet Jupiter.

Sunday dawned warm and slightly overcast. It had rained each of the seven previous week-ends, so we were a little worried that the alternative undercover site for the Con-

SILENT KEY

It is with deep regret that we record the passing of:—

VK3JW—C. T. Biggs.

VK3TX—W. S. (Bill) Tregear

vention may have to be used. However, when the time came to assemble at BTV6 Studios, the sky was still pleasant enough and a large gathering had arrived. Between 60 and 70 were conducted over the Studios by the Chief Engineer, Mr. Ken Hardy BTV6, by the way, has the best scenic view of Ballarat, and the building and equipment are very modern and well laid out. The conducted tour was of such interest and social success that it was long past the scheduled time when we all progressed on to the "shack on the hill"

The QTH of VK3AMH/VK3HW, sometimes mistaken for Radio Australia, is situated on top of the hill just above the t.v. studios and the three white towers, against the skyline, are one of the land marks of Ballarat. The faces of envy as the OMs investigated the mysteries of the shack and antennae were only surpassed by the determined faces of their XYLs. Looks as if a few Ham shacks are in for a broom one way or another

The 80 mx hunt was to have started from the "hill", however it wasn't, as the hidden tx wasn't heard until too late and instead of the hunters turning up a search party arrived, just in time, to call us back for lunch at the "White Swan."

The White Swan Reserve is on the bank of the Reservoir of the same name and was an ideal situation for the final Convention location, with virgin bush flanking the opposite side and hills all around, it proved an attractive and sheltered spot. Soon the cooking pots were sizzling and the picnic lunches spread out. We have no idea of the exact number present, but there was a lot of Ham about and not all of it with mustard!

The all-band scramble started off after lunch and, while the blankets were being waved over the smoking fires, the 2 and 80 mx hidden tx's went bush, both to the same location and although only two miles from the reserve, the first 80 mx hunter, 3LN, took 16 minutes and was heard and at times viewed bulldozing through the scrub for some five or more minutes before arriving at the spot No 2 mx hunter found the tx although 3ZAA was seen in the distance.

Meanwhile, back at the ranch—I mean "Swan"—the harmonics were busy with 3 lbs. of boiled sweets and sundry snow balls, not to mention 2½ gallons of ice cream—mine were lll, hope yours were of sturdier stock.

The hunters returned, the mobiles were judged, and afternoon tea polished off in that order, then after the various trophies were awarded, the final entertainment of the day was presented. This took the form of an auction. Len 3LN held the hammer, and in his capable and witty manner, received the bids on the various items. Actually the auction proceeds were enough to cover the expenses of the afternoon. Future Convention organisers may like to take note.

It would not be fair to finish this report without mentioning the support given me by John 3HW, Ron 3ZER, Reg 4ZFD, John 3ZFW, Bob 1ZFT, Don 3PO and Hamish 3ZMV—thanks chaps.

Special thanks also to the XYLs and YLs, to whom fell the usual chores associated with this sort of thing. Also, to Divisional Council, Manufacturers and Distributors, and of course those who attended our acknowledgment of your support for what in my humble opinion was a most successful week-end. 73, 4ZBS.

NORTH EASTERN ZONE

3ACD now has a complete s.s.b. outfit, although he is not as yet accustomed to operating it, he feels very happy. His first contact was with an SV1, closely followed by a couple of Gs. VKs 3APF, 3ACK, 3ZES, 3CI, 3AWT and 3VL still have their regular cosy daily 2 mx nets at 1230 hrs. 3AWT does not appear to get out at all well, I believe. Where are the Yarrawonga club boys? 3CI recently erected a 60 ft. ex-t.v. tower and is about to antennaise it. 3HZ has recently taken a few looks at his cobwebby gear and is half decided to renew electros and come on 80 mx. 3ZJH solidly bashing away at Morse practice; he's stuck at 8 w.p.m. now.

Heard tell our zone was recently awarded the Kinnear Trophy. Another momentous decision of October state rhubarb session was to award the next State Convention to Shepparton. Local boys have been set yammering and we held a meeting to appoint volunteers to organise the usual aspects.

3AUL has numerously been heard praising the wisdom of the decision; the only thing I can say is "wish you were here, Arthur."

With a deep bow and wishing all an 807'ey Xmas with a good operating '63, 73, 3ASY.

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QUEENSLAND

DIVISIONAL DOINGS

A full roll up of members attended the Divisional Council's Nov. meeting An important decision was the formation of a junior member section of the Division, a move which followed a letter from a junior Members agreed to accept student members as part of the associate membership with a maximum age of 17 years and a subscription rate of 10/- a year, exclusive of "A.R." No nominations were received for the 1963 Advisory Committee, and as the P.M.G. Department said the present members were acceptable, it was decided they should continue in office. The Council decided to recommend the following applications for membership to the next general meeting. For member, T. E. Pembleton, 4ZL. For associates' N. D. Stallman and A. E. Watkins

A total of 22 members attended the Nov. general meeting on 23rd. Chairman, Pat 4KB, had some disappointing news regarding disposals. He had made a survey and found most sources appeared to have dried up. The meeting was also told a reply had been received from Federal Hdqs. on Division constitution questions, and it had been passed to the constitution committee. Members would be advised about any proposed changes. A request was made for suggestions for a venue of next year's Divisional Convention.

The meeting heard a very interesting taped lecture by Joe 2JR on Balun Transformers It was well illustrated and the information was of a practical nature suitable for any Amateur shack The Division has recommended it to country branches and clubs. On Nov 30, 14 members accepted an invitation by the engineer in charge of the Brisbane City Council's standardising laboratory, Mr Bruce Gow, to visit the laboratory This followed a lecture on modern measuring methods, given to the October general meeting An interesting night finished with tea and sandwiches.

"BASKET PICNIC" at CASH'S CROSSING

On Sunday, 2nd December, 24 members met at Cash's Crossing on the northern outskirts of Brisbane for a "Basket Picnic" which, of course, had Ham Radio for the goodies. The purpose was to examine and discuss power supplies from a W.I.C.E.N. viewpoint. While the XYLs, harmonics and friends sipped tea, the OM were around portable motors. Vic 4ZBT showed converter genemotors attached to a motor mower engine, and Mick 4ZAA had a similar unit in the process of construction. A third member had a unit to fit under the bonnet of a Holden and it was demonstrated to show how it gave no noise on a 2 mx tx. The afternoon was unusually interesting for all.

IPSWICH CLUB

The final meeting for the year of the Ipswich and District Radio Club was well attended with 38 present, and apologies being received from others. In another activity, 12 members visited the Tennyson Power House for an interesting afternoon. Bill Jehn reminds short wave listeners and associates who wish to be registered as listeners should contact him at P.O. Box 61, Ipswich, for a number

Stan 4ST and his mate, Charlie, at Redcliffe, are reported to have formed a Jamboree Radio Club. They are appealing to members for power supply components to help their young charges get a start on construction. Talking about power supplies, you should get started immediately on your gear for the coming National Field Day on 9th and 10th Feb., if you haven't got it started already. This is an individual event but the Division is keen to see a good overall VK4 turnout.

Those wanting to practice their slow Morse should keep an ear out for Steve 4BB and Jeff 4XP who are putting out f.b. signals in south-east Queensland. They are on 3804 kc at 7 a.m and 7 p.m. on Sundays and Wednesdays They would appreciate reports of signals as well as suggestions on the type of transmission. In case you have not noticed, there has been a change in the Outward QSL cards arrangement, and in fture all cards should be sent to the Division box, Box 638J.

PERSONAL NOTES

Everyone has been glad to hear the call of Bill 4WX back on the air recently Bill has been in ill-health for some time but all hope he's right for some more long contacts now. George 4GG mentioned he had ventured to the big smoke to see Bill—the first time for about 30 years. Bill 4WS, at wonderful Southport, is sporting a new car. Another man of leisure on the coast is Del 4RJ, at Burleigh Heads, who is now putting a first class signal into Brisbane at least on a new dipole. Apparently it clears the tops of the banana trees by only a couple of feet.

Les 4EH and "Sam Weller, 4CZ, have had spells in hospital recently, but both are recuperating out of the place at the time of writing. Cliff 4QJ hopes to be on 14 Mc. s.b. with a fairly low power rig inside a few months, wogs, gremlins, and birdies permitting. He mentions a pupil, Don Watson, has received his licence and is waiting impatiently for his call sign.

If you've been hearing a couple of very loud c.w. signals in Brisbane recently, chances are you've been hearing Alf 4OL and Howard 4WO "just having a practice" across town. Alf has been busy with the calls he's been

and Howard does a lot of snooping on 10 and receiving on 14 Mc. to 10 a.m. most days, 15 mx. My postman, Norm 4ZNS, is another who looks around during the middle of the day on 50 Mc. and has passed word recently of some break-throughs to VK3 and VK5.

A word in passing, don't these storms pack a kick with static, but also, don't they get rid of the interference on the insulators. 73, Don.

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SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held to a slightly below-average number of members in the usual clubrooms. The number present was around the 90, but in view of the fact that seating was available for all present, it must be recorded as slightly below average. The lecture for the night was given as being on the Cubical Quad, and the lecturer was announced in the preliminary publicity as Mr. G. Wilde (5GX). In point of fact, Gilbert organised the lecture and the facilities, but it was on tape and by means of slides, the whole business being handled by the VK2 Division, and if I might say so, they did a splendid job.

The tape was divided into three sections, theory, construction and the do's and don'ts of construction. The whole being well illustrated by means of the slides. Very little can be said of this type of lecture on paper, it has to be seen and heard in person to be really appreciated, and I can assure all those who missed the opportunity of doing so, that in its novel and entertaining approach to the subject it was really something out of the bag. Rob 5RG made the speech of returning thanks to the trio of lecturers and commented on the novelty, to the VK5 Division at least, of such an approach to lecturing, also commenting on the quietness of all present during the lecture—a sure indication of its success.

The acclamation which greeted his speech gave a sure sign of the opinions of all present and would have gladdened the hearts of the three VK2 lecturers. Gilbert 5GX, who introduced the lecture and spoke again at its end, said that in view of the splendid reception of the tape and slides, he would endeavour to procure some more at an early date. Our thanks to the VK2 Division for a job well done, and also to Gilbert for making it possible.

Before "Smoko" the chairman (John 5JC) brought up the matter of moving to more spacious clubrooms in the New Year and asked members present to say yea or nay to Council's decision to move to the Builders' and Contractors' Hall on South Terrace, commencing first meeting in January, 1963. The decision in favour of Council was almost unanimous.

Quite a number of business items were dealt with, two from "Curl" 5ZBL, who addressed the meeting in a manner worthy of Mr. Menzies at his best, the first on bringing up-to-date the method of resuscitation at the back of the Call Sign Book (mouth-to-mouth), and the second the listing of the names of all the Past Presidents of the Division in a prominent place for all to see at meeting nights. Some discussion also took place on the proposed display by the Division at the coming Manufacturers' Exhibition, but I will take the liberty of saying here and now in view of the overwhelming display of enthusiasm by the members whenever the subject is mentioned, the Division has as much chance of putting on a display at the exhibition as I have of getting even a kind smile from the VK3 scribe, who, as he modestly states, numbers among his personal friends, the editor, the entire committee, Federal Executive, etc., etc., ad-nauseum, ad-nauseum! The meeting closed at 11 p.m., with the remaining few being loudly exhorted by the chairman to "give a hand with the chairs, chaps!"

Speaking personally, something has worried me since the meeting night, and I have not been able to get it out of my mind. The second to last slide of the lecture illustrated a chair mounted on a table straddled across the roof of a house, and on the chair was an enthusiastic unknown standing up and apparently adjusting the cubical quad. The last slide of the lecture was identical except that the enthusiastic unknown was missing. Do I fear the worst, or will he appear again in some subsequent lecture?

It is possible that some distinguished visitors were present at the meeting, but if so, I would not know because the custodian of the visitors' book (Clive 5PE) was absent with leave and retained the said book in his custody. Rumor has it that the cause of his absence was that he was searching for my Worked Elizabeth Award, which so far is absent without leave. However, rumor is a fickle jade, to which very little attention can be paid.

Associate member Johnny Butler, recently returned from a sojourn at Darwin, tells me that he met George 8NE and Ted 8TF whilst there and they both wish to be remembered to all the VK5 boys. My spies report, with evident relish, that Ralph 5TR has been heard with excellent s.s.b. signals on a number of occasions. I never thought you would do it to me, Ralph. If anybody had said to me "Who could you count on to hold the fort for a.m.?" I would have said without hesitation, "My Palsy-Walsy Ralph." My cup of bitterness is brimful, nigh unto overflowing! Speaking of s.s.b., and I do so with gritted teeth, reminds me that my tame Scotchman, Dave 5DS, recently had his teeth out, and if a Scotchman with all of his teeth out does not remind you of s.s.b., then you are not one of my mob!! Dave is well and happy, and biting 100 per cent., thank you.

Luke 5LL, Dave 5DS, Glen 5ZEE, "The Admiral" 5ZAH recently paid a visit to Brian 5ZBI at Maitland, and a good time was had by all. A visit was also paid to Bill 5ZAX at South Kilkerran, who according to my spy, has enough gear inside and outside the shack to satisfy himself and a couple of hundred other devotees to the art. Luke, incidentally, had to be forcibly led away from the 100' ft. crank-up mast and was not untied until the party was half way back to Adelaide.

Charlie 5ON, due to medical reasons, has regretfully tendered his resignation from the VK5 Council. Sorry to hear it Charles. A good worker if ever there was one. Council accepted with regret.

The Port Pirie Amateur Radio Club has been re-formed and now has the new call sign of 5PP. The inaugural meeting was held at the QTH of Bert 5EQ on 1st Oct. and among those present at this meeting and a subsequent one were: John 5ZBZ, John 5YA, Bert 5EQ, Jim 5ZMJ, Ern 5EN, Brian 5CO, Bruce 5ZEG, and Bert 5BB from Crystal Brook. Two other interested parties from Crystal Brook have expressed their willingness to join the club and it has been decided to hold monthly meetings of not too fixed a date so as to work in most favourable to the majority. It is intended to start a W.I.C.E.N. group, form a Northern Net, concentrate on schoolboy instruction, film evenings, etc., etc., and plans (tentative to say the least) are under way to take all the XYLs to dinner for a bang-up Xmas do.

Election of officers resulted in Ern 5EN becoming the Patron (volunteer, unanimously acclaimed); Bert 5EQ, President; John 5YA, Vice-President; and Bruce 5ZEG as Secretary. Members of the club may be contacted on 80 mx on Friday nights between 8 and 9 p.m. (S.A. time), so go to it fellows and help to make the club a success, and give the workers the satisfaction of knowing they are appreciated. By the way, I am in complete agreement with their choice of a Secretary. He addressed his letter to me as Mr. Parsons! All of you peasants and coarse characters who address me as Boofhead, Fatty, Knucklehead, Tubby, and other terms of affection, could well take a leaf out of his book. Incidentally, Bruce 5ZEG, whilst I was considerably puffed up with that title of Mister, the handle is Warwick, although to most I am known as "Pansy," 5PanSy, get it? VK5PanSy, get it? Oh what's the use!!

Heard Tom 5AQ on the 5WI call-back the other Sunday, and my s.s.b. was working so well that I heard every word that he said as clear as clear. Of course it could have been that my a.m. was working well and I heard all he said on a.m. You can never tell with Leigh Creek. Was quite a novelty to hear the voice of Ron 5FY on 5WI, especially as it is so long since I have heard him from his own QTH. Clive 5PE, the regular operator of 5WI, was missing for some reason or other, and Ron was filling in. Good heavens! It has just struck me. Surely Clive is not still looking for my award and has never returned home! Jack 5LM heard in contact with Athol 5LQ on 7 Mc. recently and he was openly boasting as to how his daughter put him and his XYL both into the office "sweep" on the Melbourne Cup and they took off first and second. How low can anyone get?

Talking of Athol 5LQ, heard him giving a graphic description of the recent storm that passed over VK5 recently. He described in detail the antics of his front verandah post during the 84-mile-and-hour windstorm, so much so that I was waiting for the inevitable crash and bang, but he qualified it all by saying, "I was not worried very much because it has been loose for years and even jumps up and down if anyone sneezes near it!" All that drama for nothing. You should be writing for t.v., OM.

Jack 5LR is now fit and well again and toiling in good form. Had quite a spell at home, but sounds extra good now. Nice work, OM. I notice in the new Call Book, Philips Electrical Industries Apprentices have a radio club licensed with the call of 5AS. Anybody ever hear them and are they active? Some information please. Whilst I am asking questions, where is Keith 5KH? Long time no hear

or see. I know he has been gallivanting around all the country banks over the past few months, but he must report in some times. Please, where is he?

The Adelaide University Amateur Radio Club and the Prince Alfred College Amateur Radio Club, 5US and 5PZ respectively, used to practically live on the 7 Mc. band in the afternoons and early evenings, but seem to have somewhat given it away. Surely the young and keen are not losing interest, or could it be that a couple of old dodderers would come in handy to do the chores unfortunately associated with any organisation?

The Mount Gambier gang held their monthly meeting recently to a good roll-up of members, the most pleasing part being the fact of so many of the younger members coming along. Stuart 5MS is in the process of erecting a tower to put the finish to all towers, as far as he is concerned. The tower is at the moment 60 feet up in the air and will eventually be 120 feet high. Erg 5KU has his beam down at the moment, apparently checking up on where his dots and dashes have been going to. Judging by the number of QSL cards continuing to arrive for him they have been getting out very well and certainly going places.

Claude 5CH has not been to a meeting for quite a while, so must be assumed to be busy. Leo 5CJ, who is usually reported in this column as being among the missing, all hope of returning to the air abandoned, has been heard on 144 Mc. which certainly looks promising. He has been away in the line of duty for a while, somewhere in the territory of the Wild Man from Norfolk Island, and in this case he has my sympathy. Away from home and near Arch 5KK would certainly be a double punishment. Ron 5UH has had to vacate his shack, but has hopes of moving to a new QTH soon, and also hopes to be in an S2 noise area. Well, no crime in hoping. Dale 5ZER is making good progress with his 100 ft. mast, despite the destructive criticism from all and sundry. Les 5ZLS has been working a few stations on 6 and 2 mx, but as I am sometimes alluded to as a d.c. man, I wouldn't know anything about that.

Garry 5ZGR has been buying up more transformers, so it looks like more power in the offering. What most interests us is how much more power? Trev. and Col Hutcheson, along with John Lehmann, are rather anxiously awaiting results from the last L.A.O.C.P.—not real hopeful, but have their fingers crossed. Here's hoping fellows!

Col 5CJ has a new antenna on 2 mx and is well pleased with the results. He is building a new tx for that band and manages to mix the d.c. with the a.c. by keeping the lunchtime skeds on 7 Mc. He is coming down to the City of Churches for a week or so and will try and renew acquaintance with quite a number of the boys. Try and make it a meeting night, Col.

Well, here we are, the end of another year, more resolutions to make and break, and more insults to receive and hand out. Anyway, the Council and members of the VK5 Division take this opportunity of wishing all Divisions a Happy New Year and all that you want for yourself, and of course as scribe for the Division I can have the privilege of echoing their sentiments, in fact so genial do I feel that I will extend the same wishes to all of the s.s.b. gang, although I must admit that it is straining my geniality to the breaking point!! To the VK3 scribe (who numbers among his host of friends, etc., etc.) I extend the same greetings, somewhat reservedly, and to the VK4 scribes (who apparently spend most of their leisure time dashing to and from the General Post Office, for what reason I would not have the faintest idea), I can only say, all the best for the coming year, especially in the banana line. Last, but not least, all the best to the Publications Committee and to my palsy-walsy the Editor, may his red pencil turn round and bite him, I can only say, Happy New Year, and will the finances stand another nought on to my salary???? 88, 73, de 5PS—PanSy to you. [We graciously add another nought to your salary, even though you deserve a cross.—Ed.]

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TASMANIA

Geoff 7ZAS has not been feeling the best just recently, and he has had a sojourn in the Royal Hobart Hospital. We wish you a speedy and complete recovery, Geoff, and hope to see you along at the coming meeting, fully restored to health. Alex 7AX has just about got his s.s.b. rig working as he would wish, so VK7 adds yet another exponent to duck talk.

Charlie 7KS had two weeks on the mainland at the end of November on holidays, and took with him a mobile tx on 80 mx. Snowy 7CH lost a daughter and gained a son-in-law about the middle of Nov., and the function apparently passed off very agreeably. By the time this goes to print, Tom 7AL should be back on the air after an absence of about five years. Welcome to the ranks of the active, Tom. David 7ZAY has converted a 522 set to work on 6 mx and has also got a Command v.f.o. working well on 2 mx. Nev. 7ZEE has also been playing around with 2 mx mobile gear, as has Danny 7ZDM.

The phenomenon of temperature inversion was in evidence about the end of November and it will be interesting to analyse results of v.h.f. activity during that time. Here is a project for you v.h.f. boys.

We have had the following visitors to VK7 during Nov.: 2VA, Luke 5LL and Harold 2PW. Welcome to each of you. We hope your examples will be followed by many more of the Amateur fraternity.

Alan 7MY has moved into his very nice new home on the waterfront at Cremorne after having sold his farm thereabouts. He still has to build a shack for 7MY, but that project has a reasonably high priority. The Division extends best wishes for success to the half dozen or more members sitting for their licences in January. We hope to hear you all on the air shortly. 73, 7ZZ.

NORTH-WESTERN ZONE

Here we are at the end of 1962. The Hamfest is over and Christmas just about over. The Hamfest was a great success, the North-West being represented by 7SF, 7KH and 7XL. You mobile boys keep your gear well oiled as there may be a Northern Hamfest in Feb. Ever tried 2 mx mobile? Maybe we could show those boys how to find a "fox".

The bands have been fairly poor lately, but a little 20 mx DX has been getting through, mostly on s.s.b. I hear reports that 7MBs tomatoes are doing well, so David will no doubt be "dragging 'em in" with a new rx in the near future.

As we make our New Year resolution in '63, you will no doubt remember such things as "I will use the bands," "I will resist television," and "I will attend meetings as often as possible," and associates, "I will study for my A.O.C.P." 73, 7ZBH.

HAMADS

Minimum 5/-, for thirty words. Extra words, 2d. each.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received at P.O. Box 36, East Melbourne, C.2, Vic., by 8th of the month, and remittance should accompany the advertisement. Call signs are now permitted in Hamads. Dealers' advertisements not accepted in this column.

FOR SALE: All-band Trans., Geloso 2-stage V.f.o., 807 final, Geloso pi output, p.p. 807s modulator without power supply, £30. Geloso G209 Receiver, excellent order, £135. V.h.f. 2 metre Trans., QQE06/40, 807 modulator with power supply, £45. 2 metre Converter, 6ES8, 6BL8, with crystal, £10. New Grundig G.d.o., complete, £20. 5" C.r.o. home-built, R.T.V. & H. wideband design, £15. Numerous other valves and components to be listed later. All property late VK3JW. Enquiries to VK-3FY, 128 High Street, Kangaroo Flat, Vic. Phone 7274.

FOR SALE: Marconi CR150 Double Conversion 2 to 60 Mc. Receiver, excellent condition, £65. Geloso V.f.o. to pair 6146s, pi output, 100 watts phone, 120 watts c.w., self contained power supplies, £35. Acos Mike and stand, £3. VK6GU 10 and 15 mx 5 element Beam, over 9 db. gain and 25 db. front-to-back ratio, excellent performer, £15. 40 ft. galvanised steel tower, £40. Command 3-4 Mc. Tx, brand new, £5. Taylor Mutual Conductance Tube and Circuit Tester, £25. A.W.A. Tape Recorder, £35. Scope Iron and transformer, £3. Universal Avo-Minor, £3. Tubes 815, 83, 717A, 807s, etc., £3. Books: R.S.G.B., A.R.R.L. Handbooks, A.R.R.L. Antenna Handbook, Novice and Technician, Beam Antennae, Radio and Hobbies, Amateur Radio, etc, £5. VK6RE, 10 Craddock Road, Merredin, W.A.

FOR SALE: One pair only, little used, "Redifon" 9 transistor crystal controlled 27.120 Mc. Transceivers, using 6 standard size 915 cells. Each incorporates tunable broadcast receiver. Ideal for Citizens Radio use, fishing, shooting, golf, boating, etc. No separate licence required if users are licensed Hams. First cheque for £40 secures by post. VK5II, 8 Somerset Ave., Fulham Gardens, S.A.

FOR SALE: 13-tube A.W.A. Communications Receiver, 520 Kc. to 21 Mc., £20. RF24 Converter, 28 and 21 Mc., £5. Peter Field, 46 Bagot Rd., Elizabeth South, South Aus.

FOR SALE: 100 ft. wind-up tower, five sections of 20 ft., winching for each stage, all galvanised, will hold 80 lb. beam, £39. Ring FW 1428 or write VK3UZ, C/o. P.O. Leongatha, Vic.

SELL: ATR2B in good condition, no reasonable offer refused. Ring Melb. JU 3920.

SELL: BC342, 240v. operation, only few mods. VK5RN, FX 1210 after 20th Dec. £25.

SELL: 100 watt Tx, Geloso V.f.o. in steel cabinet, modulator Class B 807s, plus power supplies, £55. Oscilloscope M/D32 and power supply, £15. Command Transmitters, 4 to 5.3, and 5.3 to 7 megs, £2. Transceiver ATR4B, £5. M. O. Bested, VK2AEB. Box 446, Griffith, N.S.W. Phone 560.

WANTED TO BUY or for short loan, "QST," May 1951; "QST," September and October, 1952. K. Postler, 26 Hilltop Ave., Modbury, S.A. VK5KI.